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1967 REPORT OF

EGG PRODUCTION TESTS

UNITED STATES AND CANADA

- **RANDOM SAMPLE EGG PRODUCTION TESTS**

  TWO-YEAR COMBINED SUMMARY, 1965-66 AND 1966-67
  PROCEDURES FOR COMPUTING COMBINED SUMMARY
  RANGE GROUP RANKINGS, 1966-67
  SUPERVISORS, ENTRANTS, AND MANAGEMENT, 1966-67

AGRICULTURAL RESEARCH SERVICE • U.S. DEPARTMENT OF AGRICULTURE

Egg production tests are designed to provide poultrymen, hatcherymen, and breeders with a reliable guide to the performance of poultry stocks offered for sale. This publication contains information on many egg production traits that are of economic importance to the trade. The data were compiled from the records of official Random Sample Egg Production Tests conducted in the United States and Canada. The data resulting from these tests have been analyzed statistically by Biometrical Services of USDA's Agricultural Research Service, Beltsville, Md.

The publication of this report is based on recommendations of the National Committee on Random Sample Poultry Testing and those of the Council of American Official Poultry Tests. Information in this report was compiled by the Poultry Research Branch, Animal Husbandry Research Division, Agricultural Research Service from data furnished by Test Supervisors and the Council of American Official Poultry Tests.

The publication of this report does not imply approval or endorsement by the U.S. Department of Agriculture of any of the stocks mentioned.

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Readers who require information on the performance of chicken stock in a Chicken Meat Production Test are requested to write to: Arkansas Meat Performance Egg Phase and Reproduction Test, Department of Animal Husbandry and Veterinary Science, University of Arkansas, Fayetteville, Ark. 72702

Those who want information on performance of turkey stock in a Turkey Meat Production Test are requested to write to: Poultry Research Branch, Animal Husbandry Research Division, Agricultural Research Service, Beltsville, Md. 20705, and ask for publication ARS 44-13 "Turkey Performance Tests."

This report is divided into four sections:

1, A two-year combined summary of the data obtained in the 1965-66 and 1966-67 Random Sample Egg Production Tests. These data were treated by acceptable statistical procedures that allow the reader to compare directly the stock entered in the various egg production tests in the United States and Canada.

2, An explanation of statistical procedures that were used in computing the regressed means and confidence limits of egg production traits evaluated in the two-year combined summary.

3, A range group ranking for stock that was entered in 1966-67 Random Sample Egg Production Tests. The ranking shows the performance of each stock by traits compared with that of other stock in the same test.

4, Random Sample Egg Production Test Supervisors, list of entries, and management conditions for the test year 1966-67.

TWO-YEAR COMBINED SUMMARY FOR TEST YEARS 1965-66 and 1966-67

Entries in the various tests start with a random sample of hatching eggs or chicks of the stock to be tested. Samples are drawn according to prescribed methods to ensure that each entry is typical of the stock it represents. All entries within a test are treated alike with respect to housing, feeding, management, and disease control in order to avoid differences in performance that would be due to environment.

All tests are conducted according to these basic principles. However, even the most carefully designed and conducted tests are influenced by errors of two kinds. The first kind of error is the chance deviation or unavoidable "sampling error" made when a small sample of eggs or chicks represents an entry. The other kind of error is due to uncontrolled or unknown environmental differences between entries that occur in spite of all efforts to treat all entries within a given test as nearly alike as possible. The differences between the results for two entries in a single test for a single year may be due to these chance variations rather than to a real difference in the performance capabilities of the two stocks. The effect of such errors in comparing stocks can be materially reduced by basing comparisons on the combined results of several tests over 2 or more years. If all entries compared were entered in the same tests in both years, the simple averages could be compared directly without adjustment.

However, differences among tests and between years, and those caused by climatic conditions and other environmental factors affect the results, and as a consequence, a direct comparison of the test results of two stocks in different tests or in different years may be misleading. Therefore, to present test results in a manner that will allow sound evaluation of all stocks tested, the results were combined, by stocks and by years, and were adjusted by accepted statistical procedures for test and year differences and for variation in amount of information per stock. The results of these computations are published as the "regressed mean" for each trait for each stock that was tested (table 1).

The performance data (regressed means) reported in this summary are derived from the results reported by the individual tests for each of the past 2 years. It is unlikely, however, that the means for any stock, even though entered in only 1 test each year, will coincide precisely with the 2-year average performance data as published by the test. The variations are due to adjustments for test differences, year difference, the number of tests and of years entered, and the number of replicates per test. These statistical adjustments allow predictions of what the average performance would have been for each stock had all stocks been entered in all tests each year.

The statistical treatment applied to the test data is designed to reduce the influence of nongenetic variations. This cannot be accomplished perfectly, and consequently, estimates or predictions of performance cannot be made with absolute precision. However, reliable predictions, within prescribed limitations, can be made as to whether a difference in the reported performance of two stocks represents a real difference in their performance. These predictions involve the use of the confidence interval figures that have been computed for each trait or performance factor reported. This is explained in the paragraphs that follow.

The following example illustrates the compilation of the two-year combined summary. This and the related explanation will help the reader to use and interpret the data in table 1.

(Illustration of regressed means and 80-percent confidence limits as they might appear for a few traits)

AGE AT 50% PRODUCTION (Days)		EGG PRODUCTION: HEN HOUSED (No.)		EGG PRODUCTION: HEN DAY (%)		INCOME OVER FEED AND CHICK COST ($)		FEED PER POUND OF EGGS PRODUCED (lbs.)		EGG WEIGHT (oz.)		LARGE AND EXTRA LARGE EGGS (%)		BODY WEIGHT (lbs.)		STOCK CODE
REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	REGRESSED MEAN	80%* CONF. LIMITS	
	173		199		63.7		2.08		2.95		24.3		67.9		4.6	
175	177	204	209	64.8	65.9	2.21	2.34	3.02	3.08	24.5	24.7	69.7	71.5	4.7	4.8	995
	175		208		66.5		1.99		2.83		24.3		68.1		4.1	
177	179	215	222	67.9	69.3	2.12	2.25	2.93	3.03	24.7	25.1	70.1	72.1	4.3	4.5	996
	181		194		59.2		1.91		3.06		25.1		74.6		4.8	
184	187	200	206	60.3	61.4	2.06	2.21	3.15	3.25	25.4	25.7	76.6	78.6	5.1	5.4	997
	181		189		59.0		1.67		3.09		24.7		71.6		4.8	
183	185	196	203	60.1	61.2	1.81	1.95	3.18	3.27	25.1	25.5	74.1	76.6	4.9	5.0	998
	166		236		69.9		2.49		2.71		23.7		60.5		4.4	
169	172	241	246	71.2	72.5	2.62	2.75	2.81	2.91	23.9	24.1	62.4	64.3	4.6	4.8	999

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

The range of the confidence limits represents the amount of difference in the performance of two stocks that may be due to chance. If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5-percent level of probability. If the confidence limits for two regressed means do not overlap, the odds are at least 19 in 20 that a real difference exists in the performance of the two stocks.

The use of the above data as a means of evaluating different stocks and traits can be illustrated as follows:

For the trait "Hen-housed Egg Production" the confidence limits for Stock 995 (199 to 209) do not overlap the confidence limits of Stock 999 (236 to 246). Therefore, the regressed means of these two stocks (204 and 241 eggs, respectively) are significantly different at the 5-percent level for this trait. However, when comparing Stock 995 with Stocks 996, 997, and 998, we find that the confidence limits of this stock (199 to 209) overlap the confidence limits of each of the other three stocks (208 to 222, 194 to 206, and 189 to 203, respectively). Thus, the regressed mean of Stock 995 is not significantly different from the regressed means of Stocks 996, 997, and 998 for this trait.

Another example can be shown by using the trait "Feed Per Pound of Eggs Produced." Stock 995, with confidence limits of 2.95 to 3.08, is significantly more efficient for this trait than Stock 998, which has higher confidence limits (3.09 to 3.27) that do not overlap those of Stock 995. Likewise, when comparing Stock 995 with Stock 999 (confidence limits of 2.71 to 2.91), we find that these two sets of confidence limits do not overlap. However, in this example, Stock 995 is significantly less efficient than Stock 999 for this trait. In comparing Stock 995 with Stocks 996 and 997, we find that the confidence limits for all three of these stocks overlap, and consequently these three stocks are not significantly different in this trait at the 5-percent level of probability.

The range of the confidence limits will not necessarily be the same for two different stocks that have the same regressed mean. The number of locations in which a stock is entered, the number of replicate pens per location, the number of years entered, and the accuracy involved in adjusting for location and year effects all have a bearing on the range of the confidence limits for each individual regressed mean.

Explanation of Income Figures

The "Income Over Feed and Chick Cost" figures reported in table 1 represent the sales value of the eggs produced and of the hens at the end of the test minus the cost of the chicks and the feed used during the growing and laying periods. These figures may be useful in comparing the overall performance of stocks, but they should not be considered as predictions of "profit" to be obtained under commercial operations. The "income" figures should be reduced by other costs, such as labor, building and equipment depreciation, vaccination, litter, interest, taxes, and insurance, to approximate profits that might be expected under commercial conditions. Surveys conducted among commercial producers indicate that such other costs may range from $1 to $2 per pullet housed.

Although the average chick price is reported for each stock, this value cannot be appropriately used to convert the "Income Over Feed and Chick Cost" figure to an income over feed cost figure. The average chick price shown is a simple unadjusted average of the prices reported by the entrant for his entries in the various tests and is not directly comparable to chick cost included in "Income Over Feed and Chick Cost."

Stocks Should be Compared for All Traits

All traits should be considered when using this report to evaluate the overall performance of the various stocks. The values reported for "Income Over Feed and Chick Cost" represent a composite of several traits, combined as determined by the economic conditions of the areas in which the tests are located. The conditions under which the stock is expected to perform in commercial production may differ from those prevailing at the tests, and such differences should be taken into consideration. For example, a poultryman whose local market pays unusually good premiums for large and extra large eggs should place more emphasis on egg size in his evaluation of stock than poultrymen located in areas where such premiums are not available. The local market perference for brown or white shells should also be taken into account. Traits related to interior egg quality that affect the grade are of greatest importance in areas where prices are based on quality standards.

Each person should study his local needs and conditions and then place appropriate emphasis on the performance traits that are of greatest importance to his situation. A productive and profitable stock for one poultryman under one set of conditions may not fit the needs of another poultryman under a different set of conditions.

A brief explanation of the statistical procedures used in computing the regressed means and confidence limits is provided in the section entitled "Procedures Used for Computing Combined Summary Values."

Definition of Terms Used and Abbreviations

Stock: A term used to identify a specific breeding combination of chickens. These breeding combinations may include pure strains, strain crosses, breed crosses, incrossbreds, or combinations thereof. Kinds of stock and breeding methods are—

BPR	Barred Plymouth Rock	RIW	Rhode Island White	INX	Incrossbred
CG	California Gray	WL	White Leghorn	PS	Pure Strain
LS	Light Sussex	WPR	White Plymouth Rock	SX	Strain Cross
NH	New Hampshire	BX	Crossbred	Syn.	Synthetic
RIR	Rhode Island Red	IN	Incross		

Tests:

- Arizona (Ariz.)
- British Columbia (B. C.)
- California (Calif.)
- Central Canada (C. C.)
- Florida (Fla.)
- Minnesota (Minn.)
- Missouri Cage (Mo.-C.)
- Missouri Floor (Mo.-F.)
- New Hampshire (N. H.)
- New Jersey (N. J.)
- New York, Central (C. N. Y.)
- North Carolina (N. C.)
- Pennsylvania (Pa.)
- Tennessee (Tenn.)
- Texas (Texas)
- Wisconsin (Wis.)

Test Year: A period beginning during the first year stated in a double-year designation and ending approximately 500 days later. See Management Summary, table 7.

Definitions of Traits

Growing mortality — Percentage of birds that died on or before the time they were 150 days old or subsequent age at housing.

Laying mortality — Percentage of birds that died after they were 150 days old or subsequent age at housing.

Age at 50-percent production. — Days of age computed from the first day of the first 2 consecutive days of 50-percent production for living birds in the entry at that time.

Hen-housed egg production. — Number of eggs laid per pullet housed computed from time of housing to the end of the test.

Hen-day egg production. — Percent hen-day production from the time birds reached 50-percent production to end of test.

Income over feed and chick cost. — Income over feed and chick cost per pullet housed, with chick cost in 1,000 lots at hatch date adjusted for mortality (accidental deaths, sexing errors, and missing chicks not included).

Feed per pound of eggs. — Pounds of feed per pound of eggs produced, computed from bulk weighing of the eggs at least 1 day every 2 weeks or 2 days a month at equal intervals during the laying period of the test.

Egg weight — The weight of a dozen eggs computed from bulk weighing of the eggs at least 1 day every 2 weeks or 2 days a month during the laying period of the test.

Large and extra large eggs. — Percentage of large and extra large eggs as determined by egg-size distribution computed from all eggs laid 1 day each week.

Body weight — Average weight of birds alive at end of test.

Albumen quality — Haugh units, computed from egg weight and albumen height of broken-out egg measured on 1 day's eggs per quarter, at equal intervals. The greater the Haugh units the higher the albumen quality.

Large blood spots — Percentage of eggs with one or more large blood spots (1/8 inch or more in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.

Small blood spots — Percentage of eggs with one or more small blood spots (less than 1/8 inch in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.

Large meat spots — Percentage of eggs with one or more colored large meat spots (1/8 inch or more in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.

Small meat spots — Percentage of eggs with one or more colored small meat spots (less than 1/8 inch in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.

Specific gravity score. — Eggs are given the specific gravity score that corresponds with the specific gravity of the solution in which they will float. Eggs that do not float in a 1.100 solution are given a nine score. The specific gravity of an egg is closely correlated with shell thickness; therefore, the higher the specific gravity score, the thicker the shell. Tabulation of specific gravity solutions and the corresponding specific gravity scores follow:

Specific gravity Solution	Score	Specific gravity Solution	Score
1.068	0	1.088	5
1.072	1	1.092	6
1.076	2	1.096	7
1.080	3	1.100	8
1.084	4		

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS / NO. LOCATIONS	AVG. CHICK PRICE (¢)	MORTALITY			
						GROWING (%)		LAYING (%)	
						RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
602	Andrews, J. J. Chilliwack, B. C.	WL SX	Andrews B 31-----	8 5	32.0	2.9	1.8 4.2	14.2	12.4 16.2
145	Animal Research Institute Ottawa, Ont.	WL PS	Random Bred-----	8 4	40.0	4.5	3.1 6.1	21.7	19.5 24.0
570	Animal Research Institute Kentville, N. S.	WL PS	Kentville R. B. C.	16 6	37.5	3.1	2.2 4.2	12.3	10.6 14.1
10	Anthony, Geo. M. & Sons Strausstown, Pa.	WL SX	Anthony----------	24 7	37.6	1.7	1.1 2.4	13.0	11.4 14.7
138	Arbor Acres Farm, Inc. Glastonbury, Conn.	WL SX	Arbor Acres Queen	17 11	30.0	4.0	3.0 5.2	20.4	18.3 22.6
307	Babcock Poultry Farm, Inc. Ithaca, N. Y.	WL SX	Babcock B-300----	68 29	37.2	2.9	2.4 3.4	10.7	9.5 12.0
376	Babcock Poultry Farm, Inc. Ithaca, N. Y.	WL SX	Babcock B-310----	12 5	35.7	2.7	1.8 3.8	10.1	8.6 11.8
306	Babcock Poultry Farm, Inc. Ithaca, N. Y.	CG x WL BX	Babcock B-370----	4 1	36.0	6.4	4.5 8.5	10.5	9.0 12.1
377	Babcock Poultry Farm, Inc. Ithaca, N. Y.	RIR x BPR BX	Babcock B-390----	15 6	36.0	1.6	1.0 2.5	11.4	9.8 13.1
230	Brender's Leghorns Ferndale, N. Y.	WL SX	Money Maker-----	13 7	30.0	3.6	2.6 4.9	12.2	10.5 14.0
361	Burling Hatchery Oxford, Pa.	RIR x WPR BX	Golden Tri-Cross-	2 1	31.0	2.2	1.1 3.6	13.3	11.7 14.9
283	Cameron Leghorn Res. Farm Beaver Springs, Pa.	WL SX	Cameron #924 ----	13 4	32.0	2.6	1.7 3.6	13.5	11.7 15.4
372	Carey Farms Marion, Ohio.	WL IN	Carey's New Nick-	10 4	32.0	4.5	3.2 6.0	16.5	14.6 18.6
391	Carey Farms Marion, Ohio.	Syn. x WL BX	Carey Spots ------	2 1	32.0	2.4	1.3 3.9	13.3	11.8 14.9
31	Cashman Leghorn Farm Webster, Ky.	WL IN	Cashman Hi-Cash-	39 19	34.4	3.7	3.0 4.5	12.7	11.2 14.3
304	Cashman Leghorn Farm Webster, Ky.	Syn. x WL INX	Cashman Astronauts	15 6	32.0	2.3	1.5 3.3	14.4	12.6 16.3
289	Colonial Poultry Farms Pleasant Hill, Mo.	WL IN	True-Line 365 B--	48 22	37.5	2.4	1.9 3.0	12.9	11.4 14.4
392	Colonial Poultry Farms Pleasant Hill, Mo.	--- INX	True-Line 365 H--	3 1	37.0	3.6	2.2 5.3	11.0	9.5 12.6
309	Davis, Joe K., Hatchery Earl, N. C.	RIR x BPR BX	Davis Combiner---	24 10	34.0	2.9	2.2 3.8	8.9	7.5 10.4
394	Davis, Joe K., Hatchery Earl, N. C.	RIR PS	Davis Red--------	2 1	34.0	2.4	1.3 3.9	12.4	10.9 13.9

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

AGE AT 50% PRODUCTION (Days)		EGG PRODUCTION				INCOME OVER FEED AND CHICK COST ($)		FEED PER POUND OF EGGS PRODUCED (lbs.)		EGG WEIGHT (oz.)		LARGE AND EXTRA LARGE EGGS (%)		BODY WEIGHT (lbs.)		STOCK CODE
		HEN HOUSED (No.)		HEN DAY (%)												
RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	
	169		206		67.4		2.24		2.69		24.5		64.0		4.2	602
172	175	214	222	69.0	70.6	2.42	2.60	2.77	2.85	24.8	25.1	66.7	69.4	4.5	4.8	
	185		168		60.9		1.07		3.30		23.6		50.3		4.4	145
188	191	175	182	62.4	63.9	1.24	1.41	3.37	3.44	23.9	24.2	52.8	55.3	4.6	4.8	
	174		203		65.0		1.86		2.95		24.4		61.7		4.1	570
177	180	210	217	66.4	67.8	2.02	2.18	3.01	3.07	24.7	25.0	63.9	66.1	4.4	4.7	
	176		210		68.5		2.21		2.82		24.9		69.3		4.3	10
179	182	217	224	69.7	70.9	2.35	2.49	2.88	2.94	25.2	25.5	71.3	73.3	4.5	4.7	
	179		183		65.5		1.66		2.94		24.6		66.0		4.1	138
182	185	190	197	66.9	68.3	1.81	1.96	3.00	3.06	24.9	25.2	68.3	70.6	4.3	4.5	
	165		228		71.0		2.60		2.71		25.0		70.2		4.2	307
167	169	233	238	72.0	73.0	2.71	2.82	2.75	2.79	25.2	25.4	71.9	73.6	4.4	4.6	
	173		205		64.9		2.11		2.82		25.3		71.4		3.9	376
176	179	212	219	66.3	67.7	2.27	2.43	2.89	2.96	25.6	25.9	73.6	75.8	4.1	4.3	
	164		218		69.2		2.17		2.82		24.8		67.0		5.0	306
167	170	227	236	70.9	72.6	2.37	2.57	2.92	3.02	25.2	25.6	70.1	73.2	5.3	5.6	
	173		210		66.6		2.00		3.12		25.7		75.3		5.8	377
176	179	217	224	68.0	69.4	2.16	2.32	3.18	3.24	25.9	26.1	77.4	79.5	6.0	6.2	
	176		203		66.2		2.19		2.84		25.3		73.5		4.2	230
179	182	210	217	67.5	68.8	2.35	2.51	2.90	2.96	25.6	25.9	75.7	77.9	4.4	4.6	
	173		203		66.4		1.96		2.97		25.1		71.0		5.2	361
177	181	211	219	68.1	69.8	2.16	2.36	3.08	3.19	25.5	25.9	74.2	77.4	5.5	5.8	
	177		209		68.7		2.10		2.95		25.0		70.6		4.4	283
180	183	216	223	70.1	71.5	2.27	2.44	3.02	3.09	25.2	25.4	72.9	75.2	4.6	4.8	
	170		207		68.8		2.09		2.89		24.6		66.9		4.4	372
173	176	214	221	70.2	71.6	2.26	2.43	2.97	3.05	24.9	25.2	69.3	71.7	4.6	4.8	
	171		210		68.6		2.16		2.75		24.4		64.6		4.7	391
175	179	218	226	70.3	72.0	2.36	2.56	2.86	2.97	24.8	25.2	67.9	71.2	5.0	5.3	
	177		212		69.5		2.16		2.88		24.8		68.8		4.4	31
180	183	218	224	70.6	71.7	2.28	2.40	2.93	2.98	25.1	25.4	70.6	72.4	4.6	4.8	
	176		207		69.3		2.08		2.84		25.4		72.0		5.0	304
179	182	214	221	70.7	72.1	2.24	2.40	2.91	2.98	25.6	25.8	74.1	76.2	5.2	5.4	
	167		214		68.2		2.23		2.82		24.4		63.3		4.1	289
170	173	220	226	69.2	70.2	2.35	2.47	2.87	2.92	24.6	24.8	65.0	66.7	4.3	4.5	
	173		210		67.0		2.24		2.76		24.7		67.6		3.8	392
177	181	219	228	68.7	70.4	2.44	2.64	2.86	2.96	25.1	25.5	70.7	73.8	4.1	4.4	
	173		209		65.1		1.95		3.13		26.0		76.7		5.8	309
176	179	216	223	66.3	67.5	2.09	2.23	3.18	3.23	26.2	26.4	78.8	80.9	6.0	6.2	
	174		205		67.0		2.13		2.90		24.9		70.4		5.4	394
177	180	213	221	68.7	70.4	2.32	2.51	3.00	3.10	25.3	25.7	73.7	77.0	5.7	6.0	

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS / NO. LOCATIONS	AVG. CHICK PRICE (¢)	MORTALITY			
						GROWING (%)		LAYING (%)	
						RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
371	Demler Farms, Inc. Anaheim, Calif.	WL SX	Demler D-65 -----	37 12	30.3	3.3	2.6 4.1	11.3	9.8 12.8
346	Demler Farms, Inc. Anaheim, Calif.	Syn. x WL BX	Demler Royal-----	4 1	27.0	2.3	1.3 3.7	13.8	12.0 15.6
387	Demler Farms, Inc. Anaheim, Calif.	WL SX	Demler Regal II---	4 1	30.0	1.9	1.0 3.2	11.4	9.8 13.1
514	de Zeeuw Leghorn Breeders South Edmonton, Alta.	WL SX	de Zeeuw 752 -----	16 6	34.0	2.1	1.3 3.0	11.0	9.4 12.7
350	Erath Egg Farm Stephenville, Texas	--- INX	Erath Mestiza ----	11 6	35.0	2.7	1.8 3.9	12.4	10.7 14.3
518	Fisher Poultry Farm, Ltd. Ayton, Ont.	WL SX	Fisher 103 -------	12 6	34.0	3.7	2.6 5.0	15.1	13.3 17.1
66	Garber Poultry Breeding Fm. Modesto, Calif.	WL SX	Garber G 200 -----	33 11	33.0	2.5	1.9 3.2	11.6	10.1 13.2
65	Garber Poultry Breeding Fm. Modesto, Calif.	CG x WL BX	Garber G x 291 ---	23 8	30.6	1.9	1.3 2.7	11.1	9.6 12.8
69	Garrison, Earl W. Bridgeton, N. J.	RIR x WPR BX	Golden Sex Link---	8 4	33.5	3.5	2.3 4.9	11.7	10.0 13.5
379	Garrison, Earl W. Bridgeton, N. J.	RIR x BPR BX	Black Gold Sex Link	2 1	33.0	3.9	2.5 5.7	13.8	12.2 15.4
338	Ghostley Poultry Farm, Inc. Anoka, Minn.	WL SX	Ghostley Pearl 63 -	39 19	40.0	2.4	1.8 3.0	14.8	13.2 16.5
373	Ghostley Poultry Farm, Inc. Anoka, Minn.	WL SX	Ghostley Cage Queen	2 1	36.0	3.3	1.9 4.9	12.3	10.8 13.9
80	Hansen's Leghorn City Puyallup, Wash.	WL SX	Criss Cross H25--	13 4	33.3	3.4	2.4 4.6	12.8	11.0 14.6
322	Hanson, J. A. & Son Corvallis, Oreg.	WL SX	Super Nick A -----	8 3	32.0	3.9	2.6 5.4	15.4	13.4 17.4
225	Harco Orchards & Poultry Fm. South Easton, Mass.	RIR x BPR BX	Harco Sex Link ---	19 7	35.3	2.1	1.4 2.9	11.4	9.8 13.1
86	Hardy, C. Nelson & Son Essex, Mass.	RIR x BPR BX	Deluxe Sex Link---	6 3	32.0	1.8	.9 3.0	13.6	11.8 15.5
383	Hardy Poultry Farm, Inc. Chester, N. H.	--- BX	Hardy's Sex Link -	6 3	28.0	2.9	1.7 4.3	13.8	12.0 15.7
393	Hardy Poultry Farm, Inc. Chester, N. H.	RIR PS	Hardy Red--------	3 3	28.0	7.0	5.0 9.3	15.3	13.6 17.2
88	Heisdorf & Nelson Farms Redmond, Wash.	WL SX	H & N Nick Chick -	35 15	34.8	2.8	2.1 3.5	10.5	9.1 12.0
92	Honegger Breeder Hatchery Forrest, Ill.	WL SX	Honegger Layer---	66 23	39.0	2.7	2.2 3.2	12.8	11.4 14.3

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

AGE AT 50% PRODUCTION (Days)		EGG PRODUCTION				INCOME OVER FEED AND CHICK COST ($)		FEED PER POUND OF EGGS PRODUCED (lbs.)		EGG WEIGHT (oz.)		LARGE AND EXTRA LARGE EGGS (%)		BODY WEIGHT (lbs.)		STOCK CODE
		HEN HOUSED (No.)		HEN DAY (%)												
RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	
	175		206		66.2		2.19		2.87		25.1		70.4		4.1	
178	181	212	218	67.3	68.4	2.33	2.47	2.92	2.97	25.3	25.5	72.3	74.2	4.3	4.5	371
	171		201		65.7		1.99		2.84		24.6		64.1		4.3	
174	177	209	217	67.4	69.1	2.18	2.37	2.93	3.02	25.0	25.4	67.2	70.3	4.6	4.9	346
	173		207		66.2		2.10		2.82		24.5		64.2		4.0	
176	179	215	223	67.9	69.6	2.29	2.48	2.91	3.00	24.9	25.3	67.3	70.4	4.3	4.6	387
	179		205		67.0		2.07		2.88		24.5		64.7		4.3	
182	185	212	219	68.3	69.6	2.23	2.39	2.94	3.00	24.8	25.1	66.9	69.1	4.6	4.9	514
	168		213		68.5		2.25		2.76		24.3		62.3		4.5	
171	174	220	227	69.9	71.3	2.41	2.57	2.82	2.88	24.6	24.9	64.6	66.9	4.7	4.9	350
	179		202		68.3		2.09		2.80		24.8		67.4		4.3	
182	185	209	216	69.8	71.3	2.26	2.43	2.87	2.94	25.0	25.2	69.7	72.0	4.5	4.7	518
	175		210		67.7		2.27		2.85		25.2		73.0		4.4	
178	181	216	222	68.9	70.1	2.40	2.53	2.90	2.95	25.5	25.8	74.9	76.8	4.6	4.8	66
	165		219		68.4		2.36		2.75		25.2		69.5		4.8	
167	169	226	233	69.6	70.8	2.51	2.66	2.81	2.87	25.5	25.8	71.6	73.7	5.0	5.2	65
	172		199		63.4		1.80		3.22		25.9		76.9		6.2	
176	180	207	215	64.9	66.4	1.97	2.14	3.29	3.36	26.2	26.5	79.3	81.7	6.4	6.6	69
	174		205		67.1		1.88		3.05		25.8		75.3		5.8	
178	182	213	221	68.8	70.5	2.07	2.26	3.15	3.25	26.2	26.6	78.4	81.5	6.0	6.2	379
	169		218		70.1		2.33		2.79		25.2		71.8		4.4	
171	173	224	230	71.2	72.3	2.46	2.59	2.84	2.89	25.5	25.8	73.7	75.6	4.6	4.8	338
	162		217		67.9		2.32		2.76		24.9		68.4		4.3	
166	170	225	233	69.7	71.5	2.51	2.70	2.86	2.96	25.3	25.7	71.6	74.8	4.5	4.7	373
	177		201		66.0		2.05		2.88		24.8		68.5		4.4	
180	183	208	215	67.4	68.8	2.21	2.37	2.95	3.02	25.1	25.4	70.7	72.9	4.6	4.8	80
	174		198		66.1		1.89		2.92		23.9		58.4		4.0	
177	180	206	214	67.6	69.1	2.07	2.25	3.00	3.08	24.2	24.5	60.9	63.4	4.2	4.4	322
	174		213		68.3		2.27		2.94		26.8		82.7		5.7	
176	178	220	227	69.6	70.9	2.42	2.57	3.00	3.06	27.0	27.2	84.8	86.9	5.9	6.1	225
	178		190		62.7		1.65		3.20		25.8		77.7		5.7	
182	186	198	206	64.2	65.7	1.83	2.01	3.28	3.36	26.1	26.4	80.3	82.9	5.9	6.1	86
	177		196		64.1		1.91		3.11		26.4		79.9		5.9	
180	183	204	212	65.7	67.3	2.09	2.27	3.19	3.27	26.7	27.0	82.5	85.1	6.1	6.3	383
	183		183		62.2		1.34		3.20		24.7		68.1		5.2	
186	189	191	199	63.9	65.6	1.53	1.72	3.30	3.40	25.0	25.3	71.0	73.9	5.4	5.6	393
	171		217		68.2		2.31		2.84		24.9		68.6		4.1	
174	177	223	229	69.4	70.6	2.44	2.57	2.89	2.94	25.1	25.3	70.4	72.2	4.3	4.5	88
	172		213		68.9		2.22		2.85		24.8		68.4		4.3	
175	178	219	225	70.0	71.1	2.34	2.46	2.89	2.93	25.1	25.4	70.1	71.8	4.5	4.7	92

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS / NO. LOCATIONS	AVG. CHICK PRICE (¢)	MORTALITY			
						GROWING (%)		LAYING (%)	
						RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
378	Hubbard Farms, Inc. Walpole, N. H.	Syn. x NH BX	Golden Comet-----	18 8	35.0	2.2	1.5 3.1	11.3	9.7 13.0
96	Hy-Line Poultry Farm Des Moines, Iowa	--- INX	Hy-Line 934 ------	42 18	45.8	1.5	1.1 2.1	9.7	8.4 11.0
360	Hy-Line Poultry Farm Des Moines, Iowa	--- INX	Hy-Line 934-D----	44 23	43.0	2.8	2.2 3.5	9.5	3.2 10.9
385	Hy-Line Poultry Farm Des Moines, Iowa	--- INX	Hy-Line 934-E----	6 6	50.5	2.0	1.1 3.2	10.4	8.8 12.1
388	Hy-Line Poultry Farm Des Moines, Iowa	--- INX	Hy-Line 938 ------	18 13	46.5	2.8	1.9 3.7	11.1	9.5 12.8
356	Ideal Poultry Breeding Farm Cameron, Texas	Syn. x WL BX	Ideal 236 ---------	36 13	37.6	2.4	1.8 3.1	11.9	10.4 13.5
152	Indiana Farm Bureau Coop. Indianapolis, Ind.	WL SX	Princess 55 ------	18 7	39.3	4.4	3.3 5.6	16.2	14.4 18.2
234	Indiana Farm Bureau Coop. Indianapolis, Ind.	WL SX	Dutchess 60 ------	9 4	39.0	2.1	1.2 3.2	15.3	13.4 17.3
345	Indiana Farm Bureau Coop. Indianapolis, Ind.	WL SX	Countess 75 ------	3 1	47.0	2.9	1.7 4.5	13.8	12.1 15.5
110	Kimber Farms, Inc. Fremont, Calif.	WL SX	Kimber K 137-----	35 21	37.5	3.0	2.4 3.8	12.4	10.9 13.9
375	Kimber Farms, Inc. Fremont, Calif.	WL SX	Kimber K 137 A---	46 21	38.1	3.0	2.4 3.7	9.8	8.5 11.2
111	Kimber Farms, Inc. Fremont, Calif.	WL SX	Kimber K 141-----	21 7	37.8	2.4	1.7 3.3	9.2	7.8 10.8
112	Kimber Farms, Inc. Fremont, Calif.	WL SX	Kimber K 155-----	7 4	32.5	1.3	.6 2.3	11.4	9.7 13.1
117	Lawton, A. C. & Sons Foxboro, Mass.	RIR x WPR BX	Buff Sex Link -----	17 6	34.0	3.7	2.7 4.9	10.3	8.8 11.9
389	Mettling's Hatchery Slayton, Minn.	CG x WL BX	Cal-Lyne---------	2 2	30.0	3.3	2.0 5.0	12.6	11.1 14.2
136	Missouri Valley Hatchery Marshall, Mo.	WL SX	Best Egg Contest--	3 1	33.0	2.8	1.6 4.3	11.5	10.0 13.2
598	Nelson, George F. Truro, N. S.	RIR(LSxRIR) BX	Nelson Sex Link---	6 5	27.0	2.4	1.4 3.8	16.4	14.4 18.4
37	North Cent. Reg. Plty. Br. Lab Lafayette, Ind.	WL PS	Reg. Cornell Contr.	42 13	40.3	4.0	3.3 4.8	15.9	14.3 17.6
157	North Cent. Reg. Plty. Br. Lab Lafayette, Ind.	RIR x WL BX	R. Red x R. Cornell	4 1	34.0	4.1	2.6 5.8	12.4	10.8 14.2
352	Parks Poultry Farm Altoona, Pa.	WL SX	Keystone B-1 -----	24 10	35.2	3.9	3.0 4.9	10.9	9.4 12.6

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

AGE AT 50% PRODUCTION (Days)		EGG PRODUCTION: HEN HOUSED (No.)		EGG PRODUCTION: HEN DAY (%)		INCOME OVER FEED AND CHICK COST ($)		FEED PER POUND OF EGGS PRODUCED (lbs.)		EGG WEIGHT (oz.)		LARGE AND EXTRA LARGE EGGS (%)		BODY WEIGHT (lbs.)		STOCK CODE
RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	
	167		211		65.4		2.16		2.90		26.2		76.6		5.1	378
169	171	217	223	66.6	67.8	2.31	2.46	2.96	3.02	26.5	26.8	78.6	80.6	5.3	5.5	
	171		222		70.1		2.42		2.69		25.6		74.2		3.9	96
173	175	228	234	71.2	72.3	2.55	2.68	2.74	2.79	25.9	26.2	76.1	78.0	4.1	4.3	
	171		221		69.9		2.40		2.71		25.2		71.6		3.8	360
173	175	227	233	71.0	72.1	2.52	2.64	2.76	2.81	25.5	25.8	73.5	75.4	4.0	4.2	
	173		215		68.6		2.36		2.61		25.7		77.5		3.8	385
176	179	223	231	70.2	71.8	2.54	2.72	2.70	2.79	26.1	26.5	80.1	82.7	4.0	4.2	
	171		212		67.5		2.32		2.69		25.8		77.8		3.9	388
174	177	219	226	68.9	70.3	2.48	2.64	2.76	2.83	26.1	26.4	80.2	82.6	4.1	4.3	
	172		217		68.8		2.36		2.77		25.1		70.9		4.3	356
174	176	223	229	69.9	71.0	2.49	2.62	2.82	2.87	25.3	25.5	72.8	74.7	4.5	4.7	
	176		199		67.2		2.05		2.83		24.9		69.6		4.1	152
179	182	206	213	68.5	69.8	2.20	2.35	2.89	2.95	25.2	25.5	71.6	73.6	4.3	4.5	
	177		207		70.4		2.18		2.76		24.9		69.4		4.3	234
180	183	214	221	71.9	73.4	2.35	2.52	2.83	2.90	25.2	25.5	71.8	74.2	4.5	4.7	
	173		205		67.7		2.04		2.82		24.9		68.4		4.1	345
177	181	214	223	69.4	71.1	2.23	2.42	2.92	3.02	25.2	25.5	71.6	74.8	4.4	4.7	
	171		213		68.3		2.28		2.78		24.6		66.9		4.1	110
173	175	219	225	69.4	70.5	2.41	2.54	2.83	2.88	24.9	25.2	68.7	70.5	4.3	4.5	
	170		219		68.9		2.47		2.75		24.8		69.0		4.2	375
172	174	225	231	69.9	70.9	2.60	2.73	2.80	2.85	25.0	25.2	70.8	72.6	4.4	4.6	
	171		219		68.6		2.46		2.69		25.0		70.4		4.3	111
174	177	226	233	69.8	71.0	2.61	2.76	2.75	2.81	25.3	25.6	72.5	74.6	4.5	4.7	
	170		219		69.4		2.26		2.74		24.6		63.0		4.2	112
173	176	227	235	71.0	72.6	2.44	2.62	2.82	2.90	24.9	25.2	65.7	68.4	4.4	4.6	
	178		199		63.5		1.77		3.16		26.5		80.9		5.8	117
181	184	206	213	64.8	66.1	1.93	2.09	3.22	3.28	26.8	27.1	83.0	85.1	6.0	6.2	
	170		206		66.9		2.11		2.89		24.7		66.9		4.3	389
173	176	215	224	68.7	70.5	2.30	2.49	2.99	3.09	25.0	25.3	70.0	73.1	4.5	4.7	
	173		212		68.4		2.30		2.74		24.7		68.7		4.1	136
177	181	221	230	70.1	71.8	2.49	2.68	2.84	2.94	25.1	25.5	71.9	75.1	4.4	4.7	
	172		187		62.5		1.62		3.16		24.9		67.6		5.0	598
175	178	195	203	64.0	65.5	1.80	1.98	3.24	3.32	25.2	25.5	70.1	72.6	5.2	5.4	
	180		188		63.6		1.62		3.20		23.9		58.3		4.4	37
182	184	194	200	64.7	65.8	1.75	1.88	3.25	3.30	24.2	24.5	60.2	62.1	4.6	4.8	
	172		198		64.0		1.67		3.19		24.4		63.6		5.3	157
176	180	206	214	65.7	67.4	1.86	2.05	3.28	3.37	24.8	25.2	66.7	69.8	5.6	5.9	
	169		219		68.8		2.29		2.80		25.1		71.1		4.5	352
172	175	225	231	70.1	71.4	2.44	2.59	2.85	2.90	25.4	25.7	73.1	75.1	4.7	4.9	

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS / NO. LOCATIONS	AVG. CHICK PRICE (¢)	MORTALITY			
						GROWING (%)		LAYING (%)	
						RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
359	Parks Poultry Farm Altoona, Pa.	WL SX	Keystone K-1700 --	2 1	25.0	4.4	2.9 6.3	13.1	11.6 14.7
382	Parks Poultry Farm Altoona, Pa.	RIR x WPR BX	Sil-Go-Links -----	9 5	34.5	2.1	1.2 3.2	10.6	9.0 12.3
390	Parks Poultry Farm Altoona, Pa.	CG x WL BX	Gray-Keys -------	1 1	34.0	4.4	3.0 6.1	13.1	11.8 14.3
159	Randall Hat. & Breeding Fm. Cherry Valley, Calif.	CG x WL BX	Gray x Leghorn ---	4 1	30.0	1.6	.8 2.8	11.6	10.0 13.3
160	Rapp Leghorn Farm, Inc. Farmingdale, N. J.	WL SX	Rapp Linecross ---	2 1	36.0	2.3	1.2 3.7	12.9	11.5 14.5
181	Shaver Poultry Breeding Fm. Galt, Ont.	WL SX	Starcross 288-----	63 24	37.0	3.1	2.5 3.6	11.8	10.5 13.2
315	Shaver Poultry Breeding Fm. Galt, Ont.	WL SX	Starcross 292-----	6 3	36.0	2.9	1.8 4.4	14.5	12.6 16.4
533	Starline Breeders Hatchery Saskatoon, Sask.	CG x WL BX	Pearlette---------	14 7	38.0	2.4	1.6 3.5	14.6	12.8 16.6
186	Stever Hatchery Huntingdon, Pa.	WL SX	Stever SC-300 ----	16 7	33.0	3.9	2.9 5.1	14.7	12.9 16.6
190	Stone's Poultry Farm Dinuba, Calif.	WL SX	Stone H 56--------	45 21	33.6	2.9	2.3 3.6	12.8	11.3 14.3
336	Sturtevant Farms, Inc. Halifax, Mass.	RIR x BPR BX	Black Sex Link----	6 3	32.0	2.1	1.2 3.4	11.7	10.0 13.5
384	Sturtevant Farms, Inc. Halifax, Mass.	RIR x WPR BX	Sturtevant Goldies-	6 3	32.0	3.0	1.9 4.5	10.0	8.4 11.7
395	Tokai Poultry Farm, Ltd. Cape Province, S. Africa	WL SX	WLBA ----------	2 2	35.0	2.4	1.3 3.8	16.3	14.6 18.0
199	Townline Poultry Farm Zeeland, Mich.	WL SX	Townline SC-30 ---	5 1	32.0	3.7	2.3 5.3	13.6	11.8 15.5
556	Triska, Eric Edmonton, Alta.	WL SX	Belmont 292 ------	10 5	35.0	2.8	1.8 4.0	12.7	10.9 14.6
305	Warren, J. J., Inc. North Brookfield, Mass.	RIR x RIW BX	Sex-Sal-Link-F ---	25 9	39.8	2.4	1.7 3.2	9.4	8.0 10.9
349	Webster Poultry Farm Auburn, N. Y.	RIR SX	Webster New Red -	4 1	35.0	3.5	2.2 5.2	15.2	13.4 17.1
290	Welp's Breeding Farm Bancroft, Iowa	WL SX	Welpline 937------	46 20	36.0	3.1	2.5 3.8	12.1	10.7 13.5

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

AGE AT 50% PRODUCTION (Days)		EGG PRODUCTION: HEN HOUSED (No.)		EGG PRODUCTION: HEN DAY (%)		INCOME OVER FEED AND CHICK COST ($)		FEED PER POUND OF EGGS PRODUCED (lbs.)		EGG WEIGHT (oz.)		LARGE AND EXTRA LARGE EGGS (%)		BODY WEIGHT (lbs.)		STOCK CODE
RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	
	180		197		65.2		1.96		2.84		25.3		70.2		4.1	
183	186	205	213	67.0	68.8	2.15	2.34	2.95	3.06	25.7	26.1	73.4	76.6	4.4	4.7	359
	175		207		65.2		2.02		3.02		25.8		77.5		5.5	
178	181	215	223	66.7	68.2	2.20	2.38	3.10	3.18	26.1	26.4	79.9	82.3	5.7	5.9	382
	172		206		66.7		2.03		2.85		24.3		62.8		4.2	
176	180	214	222	68.3	69.9	2.21	2.39	2.95	3.05	24.7	25.1	66.2	69.6	4.5	4.8	390
	168		211		67.6		2.16		2.82		25.2		69.6		4.7	
171	174	219	227	69.3	71.0	2.35	2.54	2.92	3.02	25.6	26.0	72.7	75.8	5.0	5.3	159
	174		203		66.0		2.05		2.88		25.2		71.7		4.2	
178	182	211	219	67.7	69.4	2.25	2.45	2.98	3.08	25.6	26.0	74.9	78.1	4.5	4.8	160
	171		228		73.0		2.61		2.73		25.6		75.3		4.4	
174	177	233	238	74.0	75.0	2.73	2.85	2.77	2.81	25.8	26.0	77.0	78.7	4.6	4.8	181
	172		215		70.9		2.39		2.66		25.6		73.2		4.4	
175	178	223	231	72.4	73.9	2.57	2.75	2.74	2.82	25.9	26.2	75.8	78.4	4.6	4.8	315
	173		196		64.5		1.77		3.07		24.8		66.2		5.0	
176	179	203	210	65.9	67.3	1.93	2.09	3.13	3.19	25.1	25.4	68.3	70.4	5.3	5.6	533
	182		194		64.9		1.98		2.97		24.5		65.6		4.0	
185	188	201	208	66.2	67.5	2.13	2.28	3.03	3.09	24.8	25.1	67.6	69.6	4.2	4.4	186
	168		212		67.8		2.20		2.86		24.6		64.7		4.2	
170	172	218	224	68.9	70.0	2.34	2.48	2.91	2.96	24.8	25.0	66.7	68.7	4.4	4.6	190
	177		201		65.0		1.96		3.09		25.9		76.8		5.8	
180	183	209	217	66.6	68.2	2.14	2.32	3.17	3.25	26.3	26.7	79.3	81.8	6.1	6.4	336
	177		203		65.2		1.99		2.99		26.0		76.6		5.3	
180	183	211	219	66.8	68.4	2.17	2.35	3.08	3.17	26.3	26.6	79.1	81.6	5.6	5.9	384
	167		199		66.3		1.83		2.99		23.7		53.7		4.9	
171	175	207	215	68.0	69.7	2.02	2.21	3.10	3.21	24.1	24.5	56.8	59.9	5.2	5.5	395
	175		201		65.7		2.04		2.87		24.4		66.4		4.1	
178	181	209	217	67.4	69.1	2.23	2.42	2.97	3.07	24.8	25.2	69.3	72.2	4.3	4.5	199
	177		205		67.4		2.13		2.86		24.9		68.6		4.3	
180	183	212	219	68.8	70.2	2.30	2.47	2.93	3.00	25.2	25.5	70.9	73.2	4.5	4.7	556
	176		205		65.3		2.15		3.03		25.8		76.3		5.4	
179	182	212	219	66.5	67.7	2.29	2.43	3.09	3.15	26.1	26.4	78.4	80.5	5.6	5.8	305
	174		197		65.9		1.88		2.97		25.1		68.3		5.2	
178	182	206	215	67.6	69.3	2.08	2.28	3.07	3.17	25.4	25.7	71.3	74.3	5.4	5.6	349
	172		214		68.8		2.37		2.76		24.7		67.7		3.7	
174	176	219	224	69.9	71.0	2.50	2.63	2.81	2.86	24.9	25.1	69.6	71.5	3.9	4.1	290

* *If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	STRAIN OR TRADENAME	ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS				MEAT SPOTS				SPECIFIC GRAVITY SCORE	
				1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)		1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)			
		RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
602	Andrews B-31		75.9		.8		1.6		0.0		0.0		3.99
		77.0	78.1	1.1	1.4	2.0	2.6	.1	.3	.3	.8	4.15	4.31
145	A.R.I. Random Bred		78.1		1.1		2.1		0.0		.2		3.75
		79.1	80.1	1.4	1.7	2.6	3.2	.1	.3	.7	1.5	3.90	4.05
570	Kentville R. B. C.		75.6		1.2		1.9		0.0		0.0		3.92
		76.6	77.6	1.5	1.9	2.4	3.0	.1	.2	.2	.6	4.06	4.20
10	Anthony		79.0		1.0		1.2		0.0		.2		3.59
		79.9	80.8	1.3	1.6	1.5	1.9	.1	.3	.5	1.0	3.71	3.83
138	Arbor Acres Queen		77.9		1.0		1.4		0.0		.2		3.85
		78.8	79.7	1.3	1.6	1.8	2.3	0.0	.2	.6	1.1	3.98	4.11
307	Babcock B-300		75.5		1.2		1.6		.1		.4		3.91
		76.2	76.9	1.5	1.8	1.9	2.2	.2	.3	.6	1.0	4.00	4.09
376	Babcock B-310		74.5		.8		.8		0.0		.2		3.91
		75.5	76.5	1.1	1.4	1.1	1.5	.1	.3	.5	1.1	4.05	4.19
306	Babcock B-370		72.9		.8		1.3		0.0		.1		3.19
		74.2	75.5	1.1	1.3	1.7	2.2	.1	.5	.6	1.6	3.39	3.59
377	Babcock B-390		75.9		1.5		3.5		4.7		15.5		3.32
		76.8	77.7	1.9	2.3	4.1	4.8	5.6	6.6	17.6	19.9	3.45	3.58
230	Brender's Money Maker		76.7		.7		1.6		0.0		.3		4.14
		77.6	78.5	1.0	1.2	2.0	2.5	.2	.4	.7	1.2	4.27	4.40
361	Burling Golden Tri - Cross		77.3		1.2		2.2		.6		8.4		3.37
		78.6	79.9	1.4	1.7	2.7	3.2	1.3	2.3	11.7	15.3	3.58	3.79
283	Cameron #924		77.9		1.0		1.8		.1		.4		3.92
		78.9	79.9	1.3	1.6	2.3	2.8	.2	.5	.9	1.6	4.06	4.20
372	Carey's New Nick		75.3		.9		1.2		0.0		.7		4.04
		76.3	77.3	1.2	1.5	1.6	2.1	.1	.3	1.4	2.3	4.19	4.34
391	Carey Spots		73.5		1.2		1.6		0.0		.2		3.31
		74.9	76.3	1.4	1.7	1.9	2.3	.1	.5	1.0	2.4	3.52	3.73
31	Cashman Hi-Cash		76.5		1.3		1.8		.1		.4		3.97
		77.3	78.1	1.6	1.9	2.1	2.5	.2	.3	.7	1.1	4.06	4.15
304	Cashman Astronauts		74.2		.8		1.7		0.0		.4		3.45
		75.1	76.0	1.0	1.3	2.1	2.6	.1	.3	.9	1.6	3.58	3.71
289	Colonial True-Line 365B		77.1		1.3		2.1		.1		.2		4.16
		77.8	78.5	1.6	1.9	2.4	2.9	.2	.3	.5	.8	4.25	4.34
392	Colonial True-Line 365H		77.5		.8		1.3		.1		.1		3.50
		78.8	80.1	1.1	1.3	1.7	2.1	0.0	.2	.7	1.8	3.71	3.92
309	Davis Combiner		75.8		.7		2.2		4.9		20.0		3.05
		76.6	77.4	.9	1.2	2.6	3.1	5.6	6.5	22.1	24.2	3.16	3.27
394	Davis Red		76.1		1.6		2.3		4.5		2.6		3.06
		77.5	78.9	1.9	2.3	2.8	3.2	6.2	8.1	4.6	7.2	3.27	3.48

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	STRAIN OR TRADENAME	ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS				MEAT SPOTS				SPECIFIC GRAVITY SCORE	
				1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)		1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)			
		RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
371	Demler D-65-------		77.1		.5		1.0		0.0		.3		3.99
		77.9	78.7	.7	1.0	1.3	1.7	.1	.3	.6	1.0	4.09	4.19
346	Demler Royal ------		75.1		1.0		1.5		0.0		.2		3.61
		76.4	77.7	1.2	1.5	2.0	2.4	.1	.4	.9	2.1	3.81	4.01
387	Demler Regal II ----		76.2		.7		1.1		0.0		.2		3.96
		77.5	78.8	.9	1.2	1.4	1.8	.3	.8	.9	2.2	4.15	4.34
514	de Zeeuw 752 ------		76.0		1.2		1.7		0.0		.4		4.05
		77.0	78.0	1.5	1.8	2.2	2.7	.1	.3	.9	1.5	4.18	4.31
350	Erath Mestiza------		74.4		1.2		2.0		0.0		.2		3.62
		75.4	76.4	1.5	1.8	2.5	3.0	.1	.3	.5	1.0	3.75	3.88
518	Fisher 103---------		75.9		1.4		2.0		0.0		.1		3.97
		76.9	77.9	1.8	2.2	2.5	3.1	.1	.3	.4	.9	4.11	4.25
66	Garber G 200 ------		80.1		.5		.8		0.0		.3		4.36
		80.9	81.7	.7	1.0	1.1	1.4	.1	.2	.6	1.0	4.46	4.56
65	Garber G x 291-----		75.8		.5		1.0		.1		.2		3.71
		76.7	77.6	.7	1.0	1.4	1.8	.2	.4	.6	1.1	3.83	3.95
69	Garrison Golden Sex Link ----------		77.2		1.1		2.9		3.9		19.1		4.21
		78.2	79.2	1.4	1.8	3.5	4.1	4.9	6.0	21.8	24.7	4.35	4.49
379	Garrison Black Gold Sex Link---------		75.7		1.0		1.8		.9		5.1		3.36
		77.1	78.5	1.2	1.4	2.2	2.6	1.7	2.8	7.7	10.8	3.57	3.78
338	Ghostley Pearl 63 --		79.2		1.0		1.6		0.0		.1		3.76
		80.0	80.8	1.2	1.5	1.9	2.3	.1	.1	.3	.6	3.86	3.96
373	Ghostley Cage Queen		78.9		.8		1.9		.1		.3		3.67
		80.3	81.7	1.1	1.3	2.3	2.7	.4	1.1	1.3	2.8	3.88	4.09
80	Hansen Criss Cross H 25 ----------		77.3		1.0		1.3		.1		.8		4.36
		78.2	79.1	1.3	1.7	1.7	2.2	.2	.5	1.4	2.3	4.49	4.62
322	Hanson Super Nick A		78.5		.8		1.8		0.0		.1		3.61
		79.6	80.7	1.1	1.4	2.2	2.7	.1	.4	.6	1.3	3.77	3.93
225	Harco Sex Link-----		77.3		1.6		3.0		5.3		14.6		3.04
		78.2	79.1	2.0	2.4	3.6	4.2	6.2	7.2	16.6	18.7	3.16	3.28
86	Hardy Deluxe Sex Link ----------		75.8		1.3		3.0		2.5		15.1		3.90
		76.9	78.0	1.7	2.0	3.6	4.3	3.5	4.5	17.9	20.8	4.07	4.24
383	Hardy's Sex Link ---		76.3		1.2		2.5		4.5		20.8		3.40
		77.4	78.5	1.5	1.9	3.0	3.6	5.7	7.0	23.9	27.2	3.56	3.72
393	Hardy Red ---------		78.0		1.2		1.6		2.4		11.9		3.44
		79.3	80.6	1.5	1.8	2.0	2.5	3.5	4.8	14.9	18.3	3.63	3.82
88	H & N Nick Chick---		80.0		1.0		1.3		0.0		.2		3.86
		80.8	81.6	1.3	1.6	1.7	2.1	.1	.2	.4	.7	3.96	4.06
92	Honegger Layer ----		76.9		.9		1.6		0.0		.2		4.11
		77.6	78.3	1.1	1.4	1.9	2.3	.1	.1	.4	.7	4.20	4.29

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	STRAIN OR TRADENAME	ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS 1/8 INCH OR MORE (%)		BLOOD SPOTS LESS THAN 1/8 INCH (%)		MEAT SPOTS 1/8 INCH OR MORE (%)		MEAT SPOTS LESS THAN 1/8 INCH (%)		SPECIFIC GRAVITY SCORE	
		RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
378	Hubbard Golden Comet	78.9	78.1 79.7	.9	.7 1.2	2.3	1.9 2.8	6.7	5.8 7.7	28.7	26.3 31.2	3.19	3.07 3.31
96	Hy-Line 934	74.1	73.3 74.9	.6	.4 .8	1.4	1.1 1.7	0.0	0.0 .1	.3	.1 .6	4.25	4.15 4.35
360	Hy-Line 934-D	75.0	74.2 75.8	.7	.5 .9	1.1	.9 1.4	0.0	0.0 .1	.3	.1 .5	4.19	4.10 4.28
385	Hy-Line 934-E	73.5	72.4 74.6	1.1	.8 1.4	1.8	1.3 2.2	.1	0.0 .2	.2	0.0 .7	4.29	4.14 4.44
388	Hy-Line 938	73.7	72.7 74.7	.6	.4 .8	.8	.6 1.1	0.0	0.0 .1	.5	.2 1.0	4.63	4.50 4.76
356	Ideal 236	76.2	75.4 77.0	1.0	.8 1.3	1.2	.9 1.5	.1	0.0 .2	.5	.3 .9	4.15	4.05 4.25
152	Ind. Fm. Bur. Princess 55	81.9	81.0 82.8	.9	.6 1.2	1.5	1.1 1.9	.1	0.0 .3	.4	.1 .8	4.17	4.05 4.29
234	Ind. Fm. Bur. Dutchess 60	82.4	81.3 83.5	1.6	1.3 2.0	2.4	1.9 3.0	.1	0.0 .3	.5	.1 1.1	3.96	3.81 4.11
345	Ind. Fm. Bur. Countess 75	80.0	78.7 81.3	1.3	1.0 1.5	1.9	1.5 2.3	.2	0.0 .6	.7	.1 1.9	4.01	3.80 4.22
110	Kimber K 137	83.0	82.3 83.7	.8	.6 1.1	1.4	1.1 1.8	0.0	0.0 .1	.6	.3 1.0	4.66	4.56 4.76
375	Kimber K 137 A	82.2	81.4 83.0	.8	.6 1.0	1.3	1.0 1.6	.2	.1 .3	.9	.6 1.4	4.53	4.43 4.63
111	Kimber K 141	78.1	77.3 78.9	1.3	1.0 1.6	1.9	1.5 2.3	0.0	0.0 .2	.6	.2 1.1	4.61	4.49 4.73
112	Kimber K 155	80.8	79.6 82.0	.8	.6 1.0	1.9	1.4 2.4	.2	0.0 .5	.7	.2 1.5	4.18	4.01 4.35
117	Lawton Buff Sex Link	78.0	77.1 78.9	1.7	1.4 2.1	3.7	3.1 4.4	6.8	5.8 7.9	18.6	16.4 20.8	3.79	3.67 3.91
389	Mettling Cal-Lyne	75.8	74.4 77.2	1.3	1.0 1.5	2.7	2.2 3.2	.2	0.0 .6	3.3	1.7 5.3	3.57	3.37 3.77
136	Mo. Valley Best Egg Contest	81.4	80.0 82.8	1.0	.8 1.2	2.0	1.6 2.4	0.0	.1 .2	.8	.1 2.0	4.52	4.32 4.72
598	Nelson Sex Link	75.3	74.2 76.4	1.5	1.1 1.8	2.8	2.3 3.4	4.5	3.5 5.7	17.4	14.8 20.2	3.66	3.50 3.82
37	North Cent. Reg. Cornell Control	78.3	77.5 79.1	1.4	1.1 1.8	2.4	2.0 2.8	.1	.1 .3	.5	.2 .9	4.07	3.97 4.17
157	North Cent. Reg. Red x Reg. Cornell	77.1	75.8 78.4	1.1	.9 1.4	1.9	1.5 2.3	2.5	1.5 3.7	8.9	6.2 11.9	3.95	3.75 4.15
352	Parks Keystone B-1	77.5	76.6 78.4	1.2	.9 1.5	2.4	1.9 2.9	.1	0.0 .2	.7	.3 1.2	4.29	4.17 4.41

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

Table 1.--Two-year combined summary: Regressed means for traits by stocks entered--Continued

STOCK CODE	STRAIN OR TRADENAME	ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS				MEAT SPOTS				SPECIFIC GRAVITY SCORE	
				1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)		1/8 INCH OR MORE (%)		LESS THAN 1/8 INCH (%)			
		RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
359	Parks Keystone K 1700	74.6 76.0 77.4		.6 .8 1.0		1.2 1.6 2.0		.1 .4 1.1		.3 1.3 2.8		3.87 4.08 4.29	
382	Parks Sil-Go-Links-	77.0 78.0 79.0		1.1 1.5 1.8		2.9 3.5 4.1		3.7 4.8 5.9		10.4 12.6 15.1		3.62 3.77 3.92	
390	Parks Gray-Keys---	77.0 78.5 80.0		1.0 1.2 1.4		1.6 1.9 2.3		.1 .4 1.1		.2 1.1 2.7		3.68 3.91 4.14	
159	Randall Gray x Leg-horn	77.1 78.5 79.9		.8 1.0 1.3		1.6 2.0 2.5		0.0 .3 .8		.6 1.6 3.1		3.73 3.93 4.13	
160	Rapp Linecross ----	77.5 78.9 80.3		1.1 1.3 1.6		1.6 2.0 2.4		0.0 .1 .5		0.0 .6 1.7		3.75 3.96 4.17	
181	Shaver Starcross 288	76.4 77.1 77.8		.7 1.0 1.2		1.7 2.0 2.4		.1 .2 .3		.4 .6 1.0		3.97 4.05 4.13	
315	Shaver Starcross 292	76.0 77.1 78.2		.8 1.1 1.4		1.2 1.6 2.0		.1 .4 .8		.4 1.0 2.0		3.91 4.08 4.25	
533	Starline Pearlette --	73.3 74.2 75.1		.7 1.0 1.3		1.1 1.5 1.9		0.0 .2 .4		.3 .7 1.3		4.04 4.17 4.30	
186	Stever SC-300------	76.6 77.4 78.2		.7 1.0 1.3		1.6 2.1 2.5		0.0 .2 .4		.1 .4 .8		4.24 4.36 4.48	
190	Stone H 56 ---------	78.3 79.0 79.7		.5 .7 .9		.7 .9 1.2		.1 .2 .3		.2 .5 .8		4.06 4.16 4.26	
336	Sturtevant Black Sex Link	75.5 76.6 77.7		1.7 2.0 2.4		1.3 1.7 2.2		4.6 5.8 7.1		12.6 15.2 18.0		3.36 3.53 3.70	
384	Sturtevant Goldies --	78.4 79.5 80.6		.7 1.0 1.2		1.6 2.1 2.6		1.7 2.4 3.4		7.5 9.6 12.0		4.02 4.19 4.36	
395	Tokai WLBA -------	74.9 76.2 77.5		1.0 1.3 1.5		1.4 1.8 2.2		.4 1.0 1.8		2.9 4.8 7.2		3.98 4.18 4.38	
199	Townline SC-30 ----	78.4 79.6 80.8		.8 1.1 1.4		1.6 2.0 2.5		0.0 .1 .3		.2 .9 2.1		3.89 4.08 4.27	
556	Triska Belmont 292-	78.1 79.1 80.1		1.2 1.5 1.9		1.4 1.9 2.4		0.0 .1 .2		.1 .4 .9		3.87 4.01 4.15	
305	Warren Sex-Sal-Link-F	77.3 78.2 79.1		.4 .6 .8		2.2 2.7 3.2		5.7 6.6 7.6		14.6 16.5 18.5		3.46 3.58 3.70	
349	Webster New Red---	76.6 77.9 79.2		1.1 1.3 1.6		2.1 2.5 3.1		3.9 5.3 7.0		12.6 16.1 19.9		3.17 3.37 3.57	
290	Welpline 937 -------	76.5 77.2 77.9		1.0 1.2 1.5		1.3 1.6 1.9		0.0 .1 .2		.2 .4 .7		3.87 3.96 4.05	

** If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.*

PROCEDURES USED FOR COMPUTING COMBINED SUMMARY VALUES

Statistical Methods

The 2-year combined summary includes performance data on 60 stocks that were entered in both the 1965-66 and 1966-67 tests and on 18 stocks that were entered only in the 1966-67 tests. The 1965-66 tests were conducted at 28 different locations, and the 1966-67 tests were conducted at 27 locations. Data for all 16 traits included in the combined analysis were reported for all locations except those in the Iowa Multiple Unit Test. Income Over Feed and Chick Cost, the Feed Conversion values, and the percentage of Large and Extra Large Eggs data were not available for Iowa for 1965-66.

Replicate data were reported by 14 locations in 1965-66 and by 11 locations in 1966-67. In addition, five locations in both years tested the stocks in replicate pens, but the number of birds per replicate was too small for a valid analysis. Consequently, the replicate data were combined by entries within each of these locations, and the resulting entry average was used in the computations. This was done to more nearly equalize the variance among pens throughout all tests. The number of pens and the number of stocks tested at each location for the two years are given in table 3.

The percentage data for both years for the six traits--growing mortality, laying mortality, large blood spots, small blood spots, large meat spots, and small meat spots--were converted to angles with the arcsin transformation prior to analysis. However, the test-year adjustment factors shown in table 3 and the regressed means and confidence limits shown for these traits in table 1, are given in percent.

The replicate data were analyzed by least-squares procedures to obtain the test-year adjustment factors shown in table 3, and the repeatability estimates and the correlations among pens within tests shown in table 2. The test-year adjustment factors were then used to adjust the simple stock average for test and year effects. The adjusted stock averages (the least-squares stock means) were then regressed toward the overall mean ($\hat{\mu}$) to account for variations in number of tests entered, number of years entered, and number of replicates per test. The formula used to compute the regressed mean is:

$$\text{Regressed Mean} = \hat{\mu} + \frac{r_{2/C}}{1+(k_3-1)x_1+(k_1-k_3)x_2+(k_2-k_3)r_1+[(1/C)-k_1-k_2+k_3]r_2}(\hat{s})$$

where:

$\hat{\mu}$ = the average of the test and year adjusted stock means.

r_1 = repeatability within year.

r_2 = repeatability from year-to-year.

x_1 = the correlation among replicates within year and test.

x_2 = the correlation among pens of the same stock from year-to-year for the same test.

k_1 = an average of the number of pens per test (averaged over years).

k_2 = an average of the number of pens per year (averaged over tests).

k_3 = an average of the number of replicates per test-year subclass.

C = the diagonal inverse element for that stock. The reciprocal of C, i.e., $\frac{1}{c}$, is equal to nk_3 if the assumption is made that the adjustments for test-year effects are made without error; where n is the number of test-year subclasses in which that stock is entered.

s = the test-year adjusted stock average minus the overall mean $\hat{\mu}$.

The correlations used in computing the regression coefficient were obtained from estimates of the variance components for stocks ($\hat{\sigma}^2_s$), the stock-X-test interaction ($\hat{\sigma}^2_{st}$), the stock-X-year interaction ($\hat{\sigma}^2_{sy}$), and the random error ($\hat{\sigma}^2_e$). The variance component estimates were obtained by equating the computed mean squares for these effects to their expectations. The mean square for stocks was adjusted for the test-year subclass by least-squares procedures for the effects of stocks and the test-year subclasses. The three-factor interaction was assumed to be non-existent. Ratios of the variance component estimates that were used to compute the correlations follow.

$$\text{Correlation Among Replicates} = x_1 = \frac{\hat{\sigma}^2_s + \hat{\sigma}^2_{st} + \hat{\sigma}^2_{sy}}{\hat{\sigma}^2_s + \hat{\sigma}^2_{st} + \hat{\sigma}^2_{sy} + \hat{\sigma}^2_e}$$

$$\text{Correlation from Year-to-Year (same test)} = x_2 = \frac{\hat{\sigma}^2_s + \hat{\sigma}^2_{st}}{\hat{\sigma}^2_s + \hat{\sigma}^2_{st} + \hat{\sigma}^2_{sy} + \hat{\sigma}^2_e}$$

$$\text{Repeatability from Test-to-Test (within year)} = r_1 = \frac{\hat{\sigma}^2_s + \hat{\sigma}^2_{sy}}{\hat{\sigma}^2_s + \hat{\sigma}^2_{st} + \hat{\sigma}^2_{sy} + \hat{\sigma}^2_e}$$

$$\text{Repeatability from Test-to-Test (between year)} = r_2 = \frac{\hat{\sigma}^2_s}{\hat{\sigma}^2_s + \hat{\sigma}^2_{st} + \hat{\sigma}^2_{sy} + \hat{\sigma}^2_e}$$

An approximate standard error (SE) was computed for each regressed mean as follows:

$$SE = b\sqrt{C(\hat{\sigma}^2_e + k_1\hat{\sigma}^2_{st} + k_2\hat{\sigma}^2_{sy})}$$

where b is the regression coefficient given above in the formula for the regressed mean. Confidence limits were then computed for each regressed mean as follows:

$$\text{Regressed Mean} \pm 1.3\ SE$$

The constant 1.3 was selected in order that the probability of the confidence limits overlapping by chance alone between any two means would be about 0.03. This makes the test of significance among regressed means almost comparable to using Duncan's range test at the 0.05 level of probability.

Definition of Statistical Terms

The following definitions of terms should be of help in interpreting the analytical procedures:

Overall mean	The average of the test-year adjusted means for all stocks. This is an estimate of what the overall average would have been had all stocks been entered in all tests in both years.
Range	The range represents the difference between the expected maximum and minimum performance among the 78 stocks, based on the regressed means.
Common stocks	Stocks that are being tested at more than one location.
Test-year adjustment factor.	The amount added to or subtracted from the actual performance of the stocks at a given location in a given year to bring them to the average of all the location-year subclasses that had complete data. These factors were determined on an intrastock basis with a least-squares analysis, and they are given in table 3.
Repeatability within year.	An intraclass correlation that measures the tendency for common stocks to rank the same from test-to-test within year. Theoretically, it can vary from 0.00 to 1.00.
Repeatability between years.	A correlation which measures the tendency for common stocks to rank the same from test-to-test from one year to another. The difference between the repeatability within year and repeatability between years indicates the relative importance of the stock-by-year interaction.
Correlation among replicates.	This correlation measures the repeatability among replicates of the same stock in the same test and year. The higher the correlation among replicates the less need there is for replication of stocks within test and year.
Correlation from year-to-year within tests.	A correlation which measures the tendency for common stock to rank the same from year-to-year when tested at the same location. The difference in the repeatability between years and in the correlation from year-to-year within tests indicates the relative importance of the stock-by-test interaction.
Confidence limits	The confidence limits for each regressed mean are computed so that the probability is about 0.08 that the "true" stock mean lies within the interval. They are presented in this report, however, for the purpose of providing approximate tests of significance for differences among stocks.

Table 2.--Analytical data for the traits measured

Trait	Overall means	Regressed means		Repeatability		Correlations within test	
		Min.	Max.	Within year (r_1)	Year-to-year (r_2)	Among replicates (x_1)	Year-to-year (x_2)
Growing mortality .....percent..	3.0	1.3	7.0	0.3035	0.3035	0.3035	0.3035
Laying mortality.....percent..	13.2	8.9	21.7	.1669	.1381	.1874	.1586
Age at 50-percent production...days..	176.2	167	188	.5178	.4967	.6773	.6563
Hen-housed egg production..number..	211.9	175	233	.3710	.3314	.4474	.4078
Hen-day egg production.....percent..	68.2	62.4	74.0	.4097	.3682	.4980	.4565
Income over feed and chick cost.....dollars..	2.22	1.24	2.73	.3920	.3581	.5573	.5235
Feed per pound of eggs.....pounds..	2.96	2.70	3.37	.4871	.4813	.5255	.5197
Egg weight.....ounces/dozen..	25.2	23.9	27.0	.7250	.6857	.7780	.7387
Large and extra large eggs .percent..	70.6	52.8	84.8	.6627	.6077	.7660	.7111
Body weight.....pounds..	4.8	3.9	6.4	.8969	.8664	.9224	.8920
Albumen quality .....Haugh Units..	77.7	73.5	83.0	.6506	.6077	.7202	.6772
Large blood spots.....percent..	1.2	.6	2.0	.1722	.1263	.2867	.2408
Small blood spots.....percent..	2.1	.8	4.1	.1936	.1729	.4029	.3821
Large meat spots.....percent..	.6	.1	6.8	.6609	.6501	.7633	.7525
Small meat spots .....percent..	2.3	.2	28.7	.7964	.7801	.8639	.8477
Specific gravity.....score..	3.98	3.16	4.66	.6091	.5897	.7029	.6835

Table 3.--Factors used to adjust for test differences

Test	Pens (Number)		Stocks tested (Number)		Mortality (Percent)			
					Growing period		Laying period	
	1966	1967	1966	1967	1966	1967	1966	1967
Alberta	22	--	11	--	+0.12	----	+2.33	----
Arizona - Cage (2 birds)	--	5	--	5	----	+0.02	----	+1.73
Arizona - Cage (5 birds)	--	5	--	5	----	+ .02	----	+ .62
Arizona - Cage (Pooled)	8	--	8	--	+ .03	----	- .75	----
Arizona - Floor	8	5	8	5	- .02	+ .02	+ .02	+ .13
British Columbia	32	44	16	11	+ .46	+ .91	- .25	- .07
California	--	92	--	23	----	+ .05	----	+ .09
Central Canada No. 1	34	14	16	14	+ .57	+ .22	.00	+ .01
Central Canada No. 2	34	14	16	14	+ .22	+ .55	.00	+ .08
Central Canada No. 3	--	14	--	14	----	+ .01	----	- .17
Central Canada No. 4	--	14	--	14	----	+ .19	----	- .23
Florida	48	--	12	--	+1.19	----	- .57	----
Iowa Farm No. 22	14	--	7	--	-4.52	----	- .07	----
Iowa Farm No. 24	14	--	7	--	-2.63	----	.00	----
Iowa Farm No. 25	14	--	7	--	-1.60	----	- .04	----
Iowa Farm No. 26	14	--	7	--	- .04	----	- .25	----
Kansas Farm No. 1	7	--	7	--	- .13	----	+ .11	----
Kansas Farm No. 3	7	--	7	--	- .76	----	+ .02	----
Kansas Farm No. 4	7	--	7	--	- .15	----	- .03	----
Kansas Farm No. 5	7	--	7	--	- .35	----	+ .20	----
Minnesota Farm No. 1	16	15	16	15	+ .24	+ .03	+1.12	+2.05
Minnesota Farm No. 3	--	15	--	15	----	+ .10	----	+ .18
Missouri - Cage	--	54	--	17	----	+1.39	----	- .05
Missouri - Floor	76	84	38	28	+ .02	+1.40	+ .02	+ .79
New Brunswick	16	--	8	--	+1.67	----	+1.41	----
New Hampshire No. 2	16	16	16	16	- .71	- .06	- .97	+ .40
New Hampshire No. 4	16	16	16	16	- .14	-1.02	+ .16	-5.84
New Hampshire No. 6	16	16	16	16	- .14	-1.02	+ .01	-3.27
New Jersey	21	12	21	12	+ .09	+ .05	- .09	+ .52
Central New York	32	32	16	16	- .61	- .25	- .70	- .37
North Carolina No. 1	40	--	20	--	- .34	----	+ .18	----
North Carolina No. 2	--	38	--	19	----	- .04	----	-2.17
North Carolina No. 3	--	38	--	19	----	+ .22	----	- .40
North Carolina No. 4	--	76	--	19	----	+ .02	----	-1.12
Pennsylvania	32	30	32	30	- .51	- .28	.00	+ .23
Tennessee	44	40	22	20	-1.88	- .01	+ .82	+ .39
Texas - Cage (1 bird)	24	19	21	17	- .07	- .77	- .11	+ .18
Texas - Cage (2 birds)	24	19	21	17	- .51	- .19	- .01	+ .02
Wisconsin	50	26	25	13	+ .01	+ .15	- .82	- .47

Table 3.--Factors used to adjust for test differences--Continued

Test	Age at 50 percent production (Days)		Egg production				Income over feed and chick cost (Dollars)	
			Hen housed (Number)		Hen day (Percent)			
	1966	1967	1966	1967	1966	1967	1966	1967
Alberta	+13.04	-----	-30.28	-----	- 4.79	----	+0.01	----
Arizona - Cage (2 birds)	-----	- 6.57	-----	- 3.66	-----	+4.10	----	-0.43
Arizona - Cage (5 birds)	-----	- 7.57	-----	+ .80	-----	+4.18	----	- .33
Arizona - Cage (Pooled)	+ 4.34	-----	+10.07	-----	+ 2.66	----	- .77	----
Arizona - Floor	- .06	+ 2.60	- 1.67	- 7.77	+ 2.44	+1.65	- .78	- .54
British Columbia	+ 5.22	+ 7.89	+ 8.44	+ 2.34	+ .11	- .67	+ .29	+ .53
California	-----	+ 6.43	-----	-33.75	-----	+6.10	----	+ .66
Central Canada No. 1	+ 2.42	+ 6.48	- 1.18	-13.98	- 1.62	-4.54	+ .17	- .65
Central Canada No. 2	+ 1.69	+ 4.36	- 6.85	-12.95	- 3.24	-4.03	- .46	- .22
Central Canada No. 3	-----	+ 2.83	-----	- 2.85	-----	-3.42	----	- .36
Central Canada No. 4	-----	+ 3.98	-----	- 4.41	-----	-3.51	----	- .45
Florida	+12.66	-----	-29.93	-----	- 1.29	----	-2.46	----
Iowa Farm No. 22	- 9.28	-----	+21.96	-----	+ 1.47	----	----	----
Iowa Farm No. 24	-16.14	-----	+28.20	-----	+ 4.02	----	----	----
Iowa Farm No. 25	-18.28	-----	+41.27	-----	+ 4.38	----	----	----
Iowa Farm No. 26	- 7.23	-----	+28.01	-----	+ 2.02	----	----	----
Kansas Farm No. 1	-19.57	-----	+41.13	-----	+10.19	----	+ .77	----
Kansas Farm No. 3	-31.00	-----	+22.34	-----	+ 1.80	----	+ .89	----
Kansas Farm No. 4	- 8.28	-----	+15.43	-----	+ 1.60	----	- .21	----
Kansas Farm No. 5	-27.28	-----	+15.57	-----	+ 1.60	----	+ .72	----
Minnesota Farm No. 1	+ 5.78	+12.05	-16.42	-15.88	+ 1.87	+ .26	+ .64	+ .54
Minnesota Farm No. 3	-----	+ 5.85	-----	+ 6.08	-----	+4.34	----	+ .49
Missouri - Cage	-----	+ 2.43	-----	-19.58	-----	+5.49	----	-2.32
Missouri - Floor	+ 1.88	+11.35	-13.33	-21.60	- 4.69	-4.56	- .96	- .67
New Brunswick	+ 5.23	-----	-18.87	-----	- 7.66	----	+ .23	----
New Hampshire No. 2	-19.01	-16.42	+18.80	- 8.39	- 1.73	-5.20	- .02	- .20
New Hampshire No. 4	- 2.20	+ 2.64	- 4.25	+30.29	- 1.85	+2.29	-1.15	+ .13
New Hampshire No. 6	- 4.63	- 3.61	+16.38	+43.04	+ 3.44	+8.41	- .76	+ .45
New Jersey	+ 8.41	+13.08	-11.47	-20.17	- 2.66	-1.86	- .37	+ .89
Central New York	+ 2.55	+ 5.22	+ 7.00	+ .90	- 1.07	-1.86	- .04	+ .21
North Carolina No. 1	+ 9.26	-----	-22.96	-----	- 5.50	----	+1.15	----
North Carolina No. 2	-----	- 7.67	-----	+39.81	-----	+4.46	----	+2.02
North Carolina No. 3	-----	- 2.51	-----	+11.37	-----	+ .02	----	+1.68
North Carolina No. 4	-----	- .67	-----	+22.24	-----	+1.34	----	+1.85
Pennsylvania	- 4.07	+ .02	- 5.38	-15.99	- 6.04	-1.98	- .72	+ .35
Tennessee	+ 3.63	- .08	+ 6.84	- 1.46	+ 4.42	-1.49	- .91	- .68
Texas - Cage (1 bird)	- .75	- .80	+11.31	+ 6.89	+ .84	+1.88	- .08	+ .52
Texas - Cage (2 birds)	- 3.58	- .92	+11.51	+ 5.40	+ 1.66	+ .87	- .03	+ .21
Wisconsin	+ .64	+ 3.31	- 1.44	- 7.54	- .98	-1.77	+ .46	+ .70

Table 3.--Factors used to adjust for test differences--Continued

Test	Feed per pound of eggs (Pounds)		Egg weight (Oz./dozen)		Large and extra large eggs (Percent)		Body weight (Pounds)	
	1966	1967	1966	1967	1966	1967	1966	1967
Alberta	-0.12	----	+0.35	----	+ 5.35	-----	-0.19	----
Arizona - Cage (2 birds)	----	+0.23	----	+0.24	-----	+14.00	----	+0.37
Arizona - Cage (5 birds)	----	+ .18	----	+ .34	-----	+13.02	----	+ .35
Arizona - Cage (Pooled)	+ .23	----	+ .17	----	+13.49	-----	+ .51	----
Arizona - Floor	+ .04	+ .06	+ .55	+ .65	+22.77	+20.84	+ .47	+ .41
British Columbia	- .27	- .25	- .31	- .21	+ 5.99	+ 4.06	- .11	- .17
California	----	+ .07	----	+ .30	-----	- 5.51	----	- .25
Central Canada No. 1	+ .16	+ .11	+ .32	- .07	+ 4.64	- 2.87	- .25	- .25
Central Canada No. 2	+ .18	+ .19	- .01	+ .10	+ .90	- 1.03	- .24	- .30
Central Canada No. 3	----	+ .05	----	- .18	-----	- 4.58	----	- .16
Central Canada No. 4	----	+ .09	----	- .08	-----	- 2.88	----	- .20
Florida	+ .14	----	+ .12	----	- 9.84	-----	+ .13	----
Iowa Farm No. 22	----	----	+1.21	----	-----	-----	+ .32	----
Iowa Farm No. 24	----	----	+ .78	----	-----	-----	- .11	----
Iowa Farm No. 25	----	----	- .70	----	-----	-----	- .04	----
Iowa Farm No. 26	----	----	+ .83	----	-----	-----	+ .09	----
Kansas Farm No. 1	- .62	----	- .54	----	- 6.75	-----	+ .05	----
Kansas Farm No. 3	- .94	----	+ .53	----	+13.74	-----	- .09	----
Kansas Farm No. 4	+ .39	----	+1.04	----	+23.72	-----	+ .04	----
Kansas Farm No. 5	- .32	----	- .69	----	- 9.93	-----	- .02	----
Minnesota Farm No. 1	- .48	- .50	- .15	+ .28	- 8.02	-13.42	- .23	- .49
Minnesota Farm No. 3	----	+ .01	----	-1.70	-----	-12.19	----	- .19
Missouri - Cage	----	- .24	----	- .38	-----	-14.80	----	- .03
Missouri - Floor	- .13	+ .18	+ .01	+ .22	- 8.42	- 9.77	+ .11	+ .13
New Brunswick	+ .22	----	+ .57	----	+12.00	-----	- .32	----
New Hampshire No. 2	- .13	+ .05	- .28	+ .51	- 6.02	+ .09	+ .19	+ .15
New Hampshire No. 4	+ .35	+ .15	+ .01	+ .41	- 7.09	- 1.77	+ .10	+ .31
New Hampshire No. 6	+ .29	- .06	- .47	- .05	- 9.94	- 6.15	- .19	+ .05
New Jersey	- .07	- .05	- .02	+ .28	+14.71	+ 1.42	+ .02	+ .02
Central New York	+ .03	+ .04	- .30	- .20	+ 1.71	- .22	+ .08	+ .02
North Carolina No. 1	+ .23	----	- .12	----	- 1.34	-----	- .37	----
North Carolina No. 2	----	- .17	----	-1.08	-----	-10.69	----	+ .07
North Carolina No. 3	----	- .06	----	- .77	-----	- 7.89	----	- .11
North Carolina No. 4	----	- .08	----	- .89	-----	-10.70	----	- .15
Pennsylvania	+ .02	+ .16	+ .15	+ .20	- 5.63	+ 2.80	+ .18	- .04
Tennessee	- .04	+ .01	- .25	+ .02	-11.10	-13.50	- .03	- .15
Texas - Cage (1 bird)	+ .18	+ .09	+ .21	+ .31	+12.31	+ 6.26	+ .22	+ .11
Texas - Cage (2 birds)	+ .23	+ .25	+ .18	+ .28	+ 9.31	+ 7.39	+ .19	+ .14
Wisconsin	- .04	- .02	+ .15	+ .26	- 3.26	- 5.19	+ .08	+ .02

Table 3.--Factors used to adjust for test differences--Continued

Test	Albumen quality (Haugh Units)		Blood spots 1/8 inch or more (Percent)		Blood spots less than 1/8 inch (Percent)	
	1966	1967	1966	1967	1966	1967
Alberta	+ 2.46	-----	0.00	----	0.00	----
Arizona - Cage (2 birds)	-----	- 5.16	----	+0.14	----	+0.72
Arizona - Cage (5 birds)	-----	- 3.70	----	+ .11	----	+ .47
Arizona - Cage (Pooled)	- .63	-----	+ .50	----	+ .14	----
Arizona - Floor	- .81	- 1.71	+ .38	+ .50	- .01	+ .09
British Columbia	- 1.02	- 1.92	- .04	- .01	- .15	.00
California	-----	+ 2.05	----	- .30	----	- .50
Central Canada No. 1	+ 4.97	+ 5.36	- .08	- .01	- .04	.00
Central Canada No. 2	+ 5.35	+ 4.45	- .03	.00	- .05	+ .03
Central Canada No. 3	-----	+ 4.66	----	- .02	----	- .01
Central Canada No. 4	-----	+ 4.09	----	- .07	----	.00
Florida	- 2.28	-----	- .31	----	- .10	----
Iowa Farm No. 22	- 2.00	-----	+ .12	----	+ .18	----
Iowa Farm No. 24	- 4.88	-----	- .06	----	+ .07	----
Iowa Farm No. 25	- 4.18	-----	.00	----	+ .33	----
Iowa Farm No. 26	- 2.49	-----	- .04	----	+ .87	----
Kansas Farm No. 1	- 2.18	-----	+ .06	----	- .06	----
Kansas Farm No. 3	- 2.87	-----	+ .26	----	+ .02	----
Kansas Farm No. 4	- 1.31	-----	- .21	----	.00	----
Kansas Farm No. 5	- 2.91	-----	- .17	----	- .01	----
Minnesota Farm No. 1	- 8.78	-10.88	- .28	- .01	+ .59	+ .07
Minnesota Farm No. 3	-----	-11.88	----	- .02	----	.00
Missouri - Cage	-----	+ .01	----	- .01	----	- .32
Missouri - Floor	- 4.24	+ .16	- .02	- .25	- .70	- .13
New Brunswick	+11.95	-----	.00	----	+ .11	----
New Hampshire No. 2	+ 4.99	+ 3.56	+ .19	+ .32	- .88	+ .82
New Hampshire No. 4	+ 6.61	+ 6.14	+ .14	+ .71	- .64	+1.48
New Hampshire No. 6	+ 6.58	+ 5.27	+ .10	+ .42	- .27	+ .83
New Jersey	- 2.50	- 5.86	+ .05	+ .14	+ .05	+ .02
Central New York	+ 1.12	+ .22	- .08	- .04	- .11	.00
North Carolina No. 1	+ .03	-----	- .09	----	- .01	----
North Carolina No. 2	-----	+ .43	----	+ .07	----	+ .06
North Carolina No. 3	-----	+ 3.80	----	+ .04	----	+ .01
North Carolina No. 4	-----	- .03	----	.00	----	.00
Pennsylvania	+ 1.26	+ 1.38	.00	+ .01	+ .09	+ .24
Tennessee	+ 3.04	- 2.22	- .01	- .01	- .12	+ .01
Texas - Cage (1 bird)	- 3.02	- 3.91	- .04	- .16	+ .06	+ .01
Texas - Cage (2 birds)	- 3.18	- 4.09	- .17	- .10	- .03	+ .06
Wisconsin	- .98	- 1.88	- .17	- .10	- .06	+ .02

Table 3.--Factors used to adjust for test differences--Continued

Test	Meat spots 1/8 inch or more (Percent)		Meat spots less than 1/8 inch (Percent)		Specific gravity score	
	1966	1967	1966	1967	1966	1967
Alberta	-0.17	----	0.00	----	-0.32	----
Arizona - Cage (2 birds)	----	+0.05	----	+0.46	----	-2.61
Arizona - Cage (5 birds)	----	.00	----	+ .46	----	-2.86
Arizona - Cage (Pooled)	- .01	----	- .01	----	-2.63	----
Arizona - Floor	- .01	.00	+ .10	+ .34	-2.13	-2.01
British Columbia	+ .02	+ .03	+ .07	+ .30	+ .43	+ .55
California	----	+ .02	----	+ .17	----	- .43
Central Canada No. 1	- .30	.00	-2.23	- .01	+ .92	+1.20
Central Canada No. 2	- .05	- .03	- .51	- .19	+1.01	+1.12
Central Canada No. 3	----	.00	----	- .02	----	+1.20
Central Canada No. 4	----	.00	----	- .04	----	+1.20
Florida	+ .07	----	+ .64	----	-1.83	----
Iowa Farm No. 22	- .04	----	.00	----	+4.17	----
Iowa Farm No. 24	.00	----	+ .38	----	+4.20	----
Iowa Farm No. 25	.00	----	- .30	----	+4.17	----
Iowa Farm No. 26	+ .01	----	+ .49	----	+4.01	----
Kansas Farm No. 1	- .08	----	-1.17	----	- .98	----
Kansas Farm No. 3	- .01	----	+ .07	----	-1.07	----
Kansas Farm No. 4	+ .01	----	- .06	----	-1.10	----
Kansas Farm No. 5	+ .01	----	- .06	----	-1.53	----
Minnesota Farm No. 1	+ .09	+ .06	+ .52	+ .81	- .68	+ .11
Minnesota Farm No. 3	----	+ .15	----	+ .37	----	- .60
Missouri - Cage	----	.00	----	.00	----	+ .32
Missouri - Floor	+ .01	- .02	+ .07	+ .31	+ .59	+ .53
New Brunswick	-1.09	----	- .48	----	+2.84	----
New Hampshire No. 2	+ .03	+ .10	-2.87	-1.14	+1.48	+1.50
New Hampshire No. 4	- .02	+ .05	-3.09	- .52	+2.12	+1.76
New Hampshire No. 6	- .12	- .06	-1.73	- .14	+1.36	+1.44
New Jersey	.00	+ .09	- .27	- .54	-1.89	-1.90
Central New York	+ .07	+ .10	+ .33	+ .71	+ .67	+ .78
North Carolina No. 1	- .01	----	+ .11	----	+1.32	----
North Carolina No. 2	----	+ .06	----	+ .14	----	+ .74
North Carolina No. 3	----	+ .10	----	+ .15	----	+ .87
North Carolina No. 4	----	+ .06	----	+ .02	----	+ .75
Pennsylvania	+ .43	+ .35	+1.43	+ .82	-1.28	- .61
Tennessee	- .01	+ .03	+ .01	+ .16	+ .09	+ .06
Texas - Cage (1 bird)	.00	- .58	+ .16	- .11	- .58	- .56
Texas - Cage (2 birds)	- .31	- .27	- .03	+ .01	- .61	- .50
Wisconsin	.00	.00	+ .07	+ .28	+ .82	+ .94

How Group Rankings Were Determined for Each Trait

The information in this part deals only with the test data obtained during the 1966-67 test year.

The performance of each entry in the 16 Random Sample Egg Production Tests conducted during 1966-67 is reported as the Range Group Rank of the entry for the trait measured. These rankings were determined in the following manner. For each trait the entries in each test were aligned in decending order of performance from the most desirable to the least desirable. The "mean" or average performance for the trait was then determined. All entries above the mean are in range group 1 or 2, and those below the mean are in range group 3 or 4. The dividing point for the entries above or below the mean is the midpoint of the range between the mean and the top or bottom entry. An illustration follows.

Stocks entered in the New Jersey test had a mean, or average, of 240.77 eggs for the trait "Eggs Per Pullet Housed." The highest average number of eggs laid by an entry in this test was 271.30, and the lowest average number laid by an entry was 223.70 eggs. To arrive at the dividing point between the first and second range groups, the mean (240.77) was subtracted from the highest number of eggs (271.30). The result, 30.53 eggs, was divided by two to get the midpoint of the range (15.27 eggs). This was subtracted from the highest number of eggs (271.30 minus 15.27) to arrive at the dividing point (256.03 eggs) between the first and second range groups. To determine the dividing point between the third and fourth range groups, the same procedure was used, except that the lowest average number of eggs (223.70) was subtracted from the mean (240.77). This difference, or range (17.07 eggs) was then divided by two, and the result (8.54 eggs) was subtracted from the mean (240.77 minus 8.54) to get the dividing point (232.23) between the third and fourth range groups. These determinations for each trait and test are tabulated in table 4.

The breeders of the stock tested and the Range Group Ranking, by traits, of each entry of the stock are shown in table 5. Each entry is also identified by the abbreviated name of the entrant. If the sample was drawn from a source other than the entrant's hatchery or supply flock, the abbreviated name of the source of the sample is shown in parentheses following the entrant's name.

The listing of the entries in the four range groups, with all entries of each stock in one table, allows the reader to quickly evaluate a stock based on this method of analysis. It should be kept in mind, however, that this method provides just four broad classifications. One-tenth of an egg or one-tenth of a percent difference in mortality could move an entry up or down one Range Group Rank, depending on its place in the range grouping.

Entrants Other Than Breeder of Stock

Name and Address	Stock Entered
Arizona State Hatchery, Tucson, Ariz. 85702	Kimber
Cherokee Hatchery, Tyler, Tex. 75701	Honegger
Hy-Lay Hatcheries, Inc., Bryan, Tex. 77803	Hy-Line
Hy-Line Poultry Farms, Johnston, Iowa 50131	Hy-Line
Johnson's Hatchery, Hamilton, Tex. 76513	Hy-Line
Kazmeier Hatchery, Inc., Bryan, Tex. 77801	Hy-Line
Keystone Poultry Breeding Farm, Terre Hill, Pa. 17581	Parks
Metz Poultry Farms, Inc., Belleville, Pa. 17004	Stone
Pratts Hatchery, Glendale, Ariz. 85301	Stone
Rothway Hatcheries, Phoenix, Ariz. 85008	Hy-Line

Table 4.--Upper and lower limits for each range group by traits and tests, 1966-67

Traits measured	Tests			
	Arizona	British Columbia	California	Central Canada
Income over feed and chick cost,				
Average - - - - dol./hen housed -	2.728	2.588	1.747	2.749
Range group 1 - - - - do - - - - -	3.120 - 2.924	3.010 - 2.799	2.300 - 2.023	3.450 - 3.099
Range group 2 - - - - do - - - - -	2.923 - 2.728	2.798 - 2.588	2.022 - 1.747	3.098 - 2.749
Range group 3 - - - - do - - - - -	2.727 - 2.619	2.587 - 2.259	1.746 - 1.213	2.748 - 1.964
Range group 4 - - - - do - - - - -	2.618 - 2.510	2.258 - 1.930	1.212 - 0.680	1.963 - 1.180
Egg production,				
Average - - number/hen housed -	227.00	223.39	255.86	220.51
Range group 1 - - - do - - - - - -	232.50 - 229.75	241.80 - 232.59	280.20 - 268.03	246.30 - 233.40
Range group 2 - - - do - - - - - -	229.74 - 227.00	232.58 - 223.39	268.02 - 255.86	233.39 - 220.51
Range group 3 - - - do - - - - - -	226.99 - 225.25	223.38 - 210.09	255.85 - 233.38	220.50 - 192.75
Range group 4 - - - do - - - - - -	225.24 - 223.50	210.08 - 196.80	233.37 - 210.90	192.74 - 165.00
Age at 50 percent production,				
Average - - - - - - - - - - days -	179.6	162.2	166.7	172.9
Range group 1 - - - - - - - do- -	174.0 - 176.8	154.0 - 158.1	156.0 - 161.4	163.0 - 168.0
Range group 2 - - - - - - - do- -	176.9 - 179.6	158.2 - 162.2	161.5 - 166.7	168.1 - 172.9
Range group 3 - - - - - - - do- -	179.7 - 181.3	162.3 - 166.6	166.8 - 170.9	173.0 - 179.5
Range group 4 - - - - - - - do- -	181.4 - 183.0	166.7 - 171.0	171.0 - 175.0	179.6 - 186.0
Growing mortality,				
Average - - - - - - - - percent -	2.28	3.95	3.58	2.60
Range group 1 - - - - - - - do - -	0.60 - 1.44	0.70 - 2.33	0.50 - 2.04	0.60 - 1.60
Range group 2 - - - - - - - do - -	1.45 - 2.28	2.34 - 3.95	2.05 - 3.58	1.61 - 2.60
Range group 3 - - - - - - - do - -	2.29 - 3.24	3.96 - 6.03	3.59 - 7.69	2.61 - 4.85
Range group 4 - - - - - - - do - -	3.25 - 4.20	6.04 - 8.10	7.70 -11.80	4.86 - 7.10
Laying mortality,				
Average - - - - - - - - percent -	6.14	11.84	9.43	14.11
Range group 1 - - - - - - - do - -	4.00 - 5.07	8.40 - 10.12	4.10 - 6.77	8.30 - 11.21
Range group 2 - - - - - - - do - -	5.08 - 6.14	10.13 - 11.84	6.78 - 9.43	11.22 - 14.11
Range group 3 - - - - - - - do - -	6.15 - 7.72	11.85 - 13.82	9.44 - 16.32	14.12 - 20.01
Range group 4 - - - - - - - do - -	7.73 - 9.30	13.83 - 15.80	16.33 - 23.20	20.02 - 25.90
Egg weight,				
Average - - - - - ounces/dozen -	24.74	25.88	24.95	25.16
Range group 1 - - - - - do - - - -	25.40 - 25.07	27.00 - 26.44	25.60 - 25.27	26.20 - 25.68
Range group 2 - - - - - do - - - -	25.06 - 24.74	26.43 - 25.88	25.26 - 24.95	25.67 - 25.16
Range group 3 - - - - - do - - - -	24.73 - 24.52	25.87 - 25.64	24.94 - 24.32	25.15 - 24.43
Range group 4 - - - - - do - - - -	24.51 - 24.30	25.63 - 25.40	24.31 - 23.70	24.42 - 23.70
Large and extra large eggs,				
Average - - - - - - - - percent -	53.98	69.35	76.40	72.31
Range group 1 - - - - - - - do - -	72.50 - 63.24	76.80 - 73.07	83.30 - 79.85	85.40 - 78.85
Range group 2 - - - - - - - do - -	63.23 - 53.98	73.06 - 69.35	79.84 - 76.40	78.84 - 72.31
Range group 3 - - - - - - - do - -	53.97 - 48.69	69.34 - 66.72	76.39 - 69.80	72.30 - 62.90
Range group 4 - - - - - - - do - -	48.68 - 43.40	66.71 - 64.10	69.79 - 63.20	62.89 - 53.50
Feed per pound of eggs,				
Average - - - - - - - - - pounds -	2.666	3.042	2.829	2.843
Range group 1 - - - - - - - do - -	2.550 - 2.608	2.860 - 2.951	2.600 - 2.715	2.550 - 2.697
Range group 2 - - - - - - - do - -	2.609 - 2.666	2.952 - 3.042	2.716 - 2.829	2.698 - 2.843
Range group 3 - - - - - - - do - -	2.667 - 2.728	3.043 - 3.266	2.830 - 3.080	2.844 - 3.147
Range group 4 - - - - - - - do - -	2.729 - 2.790	3.267 - 3.490	3.081 - 3.330	3.148 - 3.450
Albumen quality,				
Average - - - - - - Haugh Units -	82.26	79.04	75.70	72.49
Range group 1 - - - - - - - do - -	88.40 - 85.33	84.30 - 81.67	80.30 - 78.00	79.20 - 75.84
Range group 2 - - - - - - - do - -	85.32 - 82.26	81.66 - 79.04	77.99 - 75.70	75.83 - 72.49
Range group 3 - - - - - - - do - -	82.25 - 77.63	79.03 - 77.17	75.69 - 72.70	72.48 - 70.14
Range group 4 - - - - - - - do - -	77.62 - 73.00	77.16 - 75.30	72.69 - 69.70	70.13 - 67.80
Blood spots, all sizes,				
Average - - - - - - - - percent -	1.98	4.45	6.26	4.14
Range group 1 - - - - - - - do - -	1.40 - 1.69	1.50 - 2.98	3.00 - 4.63	1.90 - 3.02
Range group 2 - - - - - - - do - -	1.70 - 1.98	2.99 - 4.45	4.64 - 6.26	3.03 - 4.14
Range group 3 - - - - - - - do - -	1.99 - 2.39	4.46 - 6.13	6.27 - 8.08	4.15 - 6.02
Range group 4 - - - - - - - do - -	2.40 - 2.80	6.14 - 7.80	8.09 - 9.90	6.03 - 7.90

Table 4.--Upper and lower limits for each range group by traits and tests, 1966-67--Continued

Traits measured	Tests			
	Florida	Minnesota	Missouri Cage	Missouri Floor
Income over feed and chick cost,				
Average - - - - dol./hen housed -	4.258	1.961	4.766	3.020
Range group 1 - - - - do - - - - -	5.050 - 4.654	2.350 - 2.155	5.570 - 5.168	3.540 - 3.280
Range group 2 - - - - do - - - - -	4.653 - 4.258	2.154 - 1.961	5.167 - 4.766	3.279 - 3.020
Range group 3 - - - - do - - - - -	4.257 - 3.589	1.960 - 1.805	4.765 - 4.278	3.019 - 2.520
Range group 4 - - - - do - - - - -	3.588 - 2.920	1.804 - 1.650	4.277 - 3.790	2.519 - 2.020
Egg production,				
Average - - number/hen housed -	244.73	226.46	241.56	239.74
Range group 1 - - - do - - - - - -	272.10 - 258.41	240.80 - 233.63	269.00 - 255.28	260.80 - 250.27
Range group 2 - - - do - - - - - -	258.40 - 244.73	233.62 - 226.46	255.27 - 241.56	250.26 - 239.74
Range group 3 - - - do - - - - - -	244.72 - 215.56	226.45 - 219.18	241.55 - 228.03	239.73 - 222.87
Range group 4 - - - do - - - - - -	215.55 - 186.40	219.17 - 211.90	228.02 - 214.50	222.86 - 206.00
Age at 50 percent production,				
Average - - - - - - - - - - days -	171.4	165.1	171.6	164.8
Range group 1 - - - - - - - -do- -	165.0 - 168.2	159.0 - 162.1	164.0 - 167.8	156.0 - 160.4
Range group 2 - - - - - - - -do- -	168.3 - 171.4	162.2 - 165.1	167.9 - 171.6	160.5 - 164.8
Range group 3 - - - - - - - -do- -	171.5 - 175.2	165.2 - 171.6	171.7 - 176.3	164.9 - 168.9
Range group 4 - - - - - - - -do- -	175.3 - 179.0	171.7 - 178.0	176.4 - 181.0	169.0 - 173.0
Growing mortality,				
Average - - - - - - - - percent -	5.72	2.49	1.83	2.66
Range group 1 - - - - - - - - do - -	2.30 - 4.01	0.50 - 1.50	0.50 - 1.17	0.60 - 1.63
Range group 2 - - - - - - - - do - -	4.02 - 5.72	1.51 - 2.49	1.18 - 1.83	1.64 - 2.66
Range group 3 - - - - - - - - do - -	5.73 - 8.21	2.50 - 3.45	1.84 - 2.97	2.67 - 4.53
Range group 4 - - - - - - - - do - -	8.22 -10.70	3.46 - 4.40	2.98 - 4.10	4.54 - 6.40
Laying mortality,				
Average - - - - - - - - percent -	16.19 -	6.89	13.77	7.66
Range group 1 - - - - - - - - do - -	8.00 - 12.10	3.30 - 5.10	6.20 - 9.99	2.00 - 4.83
Range group 2 - - - - - - - - do - -	12.11 - 16.19	5.11 - 6.89	10.00 - 13.77	4.84 - 7.66
Range group 3 - - - - - - - - do - -	16.20 - 26.85	6.90 - 9.25	13.78 - 17.29	7.67 - 12.48
Range group 4 - - - - - - - - do - -	26.86 - 37.50	9.26 - 11.60	17.30 - 20.80	12.49 - 17.30
Egg weight,				
Average - - - - - ounces/dozen -	24.92	26.05	25.65	25.16
Range group 1 - - - - - do - - - -	25.60 - 25.26	27.20 - 26.62	25.50 - 26.07	27.40 - 26.28
Range group 2 - - - - - do - - - -	25.25 - 24.92	26.61 - 26.05	26.06 - 25.65	26.27 - 25.16
Range group 3 - - - - - do - - - -	24.91 - 24.26	26.04 - 25.67	25.64 - 25.07	25.15 - 24.43
Range group 4 - - - - - do - - - -	24.25 - 23.60	25.66 - 25.30	25.06 - 24.50	24.42 - 23.70
Large and extra large eggs,				
Average - - - - - - - - percent -	77.93	85.52	86.16	82.70
Range group 1 - - - - - - - - do - -	84.50 - 81.21	91.60 - 88.56	91.50 - 88.83	94.80 - 88.75
Range group 2 - - - - - - - - do - -	81.20 - 77.93	88.55 - 85.52	88.82 - 86.16	88.74 - 82.70
Range group 3 - - - - - - - - do - -	77.92 - 69.66	85.51 - 82.31	86.15 - 81.43	82.69 - 75.30
Range group 4 - - - - - - - - do - -	69.65 - 61.40	82.30 - 79.10	81.42 - 76.70	75.29 - 67.90
Feed per pound of eggs,				
Average - - - - - - - - -pounds -	2.809	3.113	3.097	2.758
Range group 1 - - - - - - - - do - -	2.670 - 2.740	2.970 - 3.042	2.810 - 2.954	2.570 - 2.664
Range group 2 - - - - - - - - do - -	2.741 - 2.809	3.043 - 3.113	2.955 - 3.097	2.665 - 2.758
Range group 3 - - - - - - - - do - -	2.810 - 2.980	3.114 - 3.202	3.098 - 3.349	2.759 - 2.944
Range group 4 - - - - - - - - do - -	2.981 - 3.150	3.203 - 3.290	3.350 - 3.600	2.945 - 3.130
Albumen quality,				
Average - - - - - - Haugh Units -	81.67	89.15	77.84	77.63
Range group 1 - - - - - - do - - -	85.30 - 83.48	93.20 - 91.17	82.00 - 79.92	82.50 - 80.06
Range group 2 - - - - - - do - - -	83.47 - 81.67	91.16 - 89.15	79.91 - 77.84	80.05 - 77.63
Range group 3 - - - - - - do - - -	81.66 - 79.83	89.14 - 87.72	77.83 - 75.47	77.62 - 75.61
Range group 4 - - - - - - do - - -	79.82 - 78.00	87.71 - 86.30	75.46 - 73.10	75.60 - 73.60
Blood spots, all sizes,				
Average - - - - - - - - percent -	6.43	4.53	4.95	6.20
Range group 1 - - - - - - do - - -	3.40 - 4.92	1.00 - 2.77	2.50 - 3.73	1.90 - 4.05
Range group 2 - - - - - - do - - -	4.93 - 6.43	2.78 - 4.53	3.74 - 4.95	4.06 - 6.20
Range group 3 - - - - - - do - - -	6.44 - 7.87	4.54 - 7.47	4.96 - 7.13	6.21 -12.50
Range group 4 - - - - - - do - - -	7.88 - 9.30	7.48 -10.40	7.14 - 9.30	12.51 -18.80

Table 4.--Upper and lower limits for each range group by traits and tests, 1966-67--Continued

Traits measured	Tests			
	New Hampshire	New Jersey	Central New York	North Carolina
Income over feed and chick cost,				
Average - - - -dol./hen housed -	1.981	1.558	2.292	0.609
Range group 1 - - - - do - - - - -	2.610 - 2.295	2.070 - 1.814	3.050 - 2.671	0.860 - 0.734
Range group 2 - - - - do - - - - -	2.294 - 1.981	1.813 - 1.558	2.670 - 2.292	0.733 - 0.609
Range group 3 - - - - do - - - - -	1.980 - 1.445	1.557 - 1.399	2.291 - 1.936	0.608 - 0.484
Range group 4 - - - - do - - - - -	1.444 - 0.910	1.398 - 1.240	1.935 - 1.580	0.483 - 0.360
Egg production,				
Average - - number/hen housed -	188.89	240.77	212.97	195.33
Range group 1 - - - do - - - - - -	218.30 - 203.59	271.30 - 256.03	242.00 - 227.48	217.50 - 206.41
Range group 2 - - - do - - - - - -	203.58 - 188.89	256.02 - 240.77	227.47 - 212.97	206.40 - 195.33
Range group 3 - - - do - - - - - -	188.88 - 170.94	240.76 - 232.23	212.96 - 197.28	195.32 - 170.96
Range group 4 - - - do - - - - - -	170.93 - 153.00	232.22 - 223.70	197.27 - 181.60	170.95 - 146.60
Age at 50 percent production,				
Average - - - - - - - - - - days -	183.3	161.7	174.6	177.1
Range group 1 - - - - - - - -do- -	167.0 - 175.2	152.0 - 156.9	166.0 - 170.3	167.0 - 172.1
Range group 2 - - - - - - - -do- -	175.3 - 183.3	157.0 - 161.7	170.4 - 174.6	172.2 - 177.1
Range group 3 - - - - - - - -do- -	183.4 - 189.7	161.8 - 166.4	174.7 - 180.8	177.2 - 184.6
Range group 4 - - - - - - - -do- -	189.8 - 196.0	166.5 - 171.0	180.9 - 187.0	184.7 - 192.0
Growing mortality,				
Average - - - - - - - - percent -	6.61	2.57	4.68	3.41
Range group 1 - - - - - - - do - -	2.90 - 4.75	0.00 - 1.29	0.00 - 2.34	0.30 - 1.86
Range group 2 - - - - - - - do - -	4.76 - 6.61	1.30 - 2.57	2.35 - 4.68	1.87 - 3.41
Range group 3 - - - - - - - do - -	6.62 - 12.01	2.58 - 4.04	4.69 - 9.04	3.42 - 5.51
Range group 4 - - - - - - - do - -	12.02 - 17.40	4.05 - 5.50	9.05 - 13.40	5.52 - 7.60
Laying mortality,				
Average - - - - - - - - percent -	20.89	8.17	17.19	20.60
Range group 1 - - - - - - - do - -	13.00 - 16.95	2.00 - 5.09	9.00 - 13.10	8.60 - 14.60
Range group 2 - - - - - - - do - -	16.96 - 20.89	5.10 - 8.17	13.11 - 17.19	14.61 - 20.60
Range group 3 - - - - - - - do - -	20.90 - 27.10	8.18 - 11.09	17.20 - 24.10	20.61 - 27.15
Range group 4 - - - - - - - do - -	27.11 - 33.30	11.10 - 14.00	24.11 - 31.00	27.16 - 33.70
Egg weight,				
Average - - - - - ounces/dozen -	25.80	25.08	25.93	26.18
Range group 1 - - - - - do - - - -	26.80 - 26.30	26.10 - 25.59	27.30 - 26.61	27.40 - 26.79
Range group 2 - - - - - do - - - -	26.29 - 25.80	25.58 - 25.08	26.60 - 25.93	26.78 - 26.18
Range group 3 - - - - - do - - - -	25.79 - 25.20	25.07 - 24.79	25.92 - 25.36	26.17 - 25.69
Range group 4 - - - - - do - - - -	25.19 - 24.60	24.78 - 24.50	25.35 - 24.80	25.68 - 25.20
Large and extra large eggs,				
Average - - - - - - - - percent -	81.18	71.55	74.49	81.05
Range group 1 - - - - - - - do - -	90.10 - 85.64	82.10 - 76.82	85.60 - 80.04	88.80 - 84.92
Range group 2 - - - - - - - do - -	85.63 - 81.18	76.81 - 71.55	80.03 - 74.49	84.91 - 81.05
Range group 3 - - - - - - - do - -	81.17 - 73.04	71.54 - 65.82	74.48 - 67.99	81.04 - 76.47
Range group 4 - - - - - - - do - -	73.03 - 64.90	65.81 - 60.10	67.98 - 61.50	76.46 - 71.90
Feed per pound of eggs,				
Average - - - - - - - - -pounds -	3.064	2.915	2.958	2.987
Range group 1 - - - - - - - do - -	2.650 - 2.857	2.750 - 2.833	2.780 - 2.869	2.790 - 2.889
Range group 2 - - - - - - - do - -	2.858 - 3.064	2.834 - 2.915	2.870 - 2.958	2.890 - 2.987
Range group 3 - - - - - - - do - -	3.065 - 3.227	2.916 - 2.988	2.959 - 3.064	2.988 - 3.234
Range group 4 - - - - - - - do - -	3.228 - 3.390	2.989 - 3.060	3.065 - 3.170	3.235 - 3.480
Albumen quality,				
Average - - - - - -Haugh Units -	72.58	83.49	77.63	76.96
Range group 1 - - - - - - do - - -	75.70 - 74.14	85.40 - 84.44	83.10 - 80.36	82.10 - 79.53
Range group 2 - - - - - - do - - -	74.13 - 72.58	84.43 - 83.49	80.35 - 77.63	79.52 - 76.96
Range group 3 - - - - - - do - - -	72.57 - 71.29	83.48 - 81.54	77.62 - 76.16	76.95 - 75.43
Range group 4 - - - - - - do - - -	71.28 - 70.00	81.53 - 79.60	76.15 - 74.70	75.42 - 73.90
Blood spots, all sizes,				
Average - - - - - - - - percent -	2.18	1.76	4.83	2.80
Range group 1 - - - - - - - do - -	0.00 - 1.09	1.30 - 1.53	1.10 - 2.97	1.50 - 2.15
Range group 2 - - - - - - - do - -	1.10 - 2.18	1.54 - 1.76	2.98 - 4.83	2.16 - 2.80
Range group 3 - - - - - - - do - -	2.19 - 3.39	1.77 - 2.58	4.84 - 8.52	2.81 - 3.60
Range group 4 - - - - - - - do - -	3.40 - 4.60	2.59 - 3.40	8.53 -12.20	3.61 - 4.40

Table 4.--Upper and lower limits for each range group by traits and tests, 1966-67--Continued

Traits measured	Tests			
	Pennsylvania	Tennessee	Texas	Wisconsin
Income over feed and chick cost,				
Average - - - -dol./hen housed -	1.950	3.051	1.954	2.252
Range group 1 - - - - do - - - - -	2.620 - 2.285	3.970 - 3.510	2.520 - 2.237	3.020 - 2.636
Range group 2 - - - - do - - - - -	2.284 - 1.950	3.509 - 3.051	2.236 - 1.954	2.635 - 2.252
Range group 3 - - - - do - - - - -	1.949 - 1.640	3.050 - 2.615	1.953 - 1.582	2.251 - 1.971
Range group 4 - - - - do - - - - -	1.639 - 1.330	2.614 - 2.180	1.581 - 1.210	1.970 - 1.690
Egg production,				
Average - -number/hen housed -	232.21	219.43	212.96	243.19
Range group 1 - - - do - - - - - -	254.90 - 243.55	247.20 - 233.31	239.60 - 226.28	253.00 - 248.09
Range group 2 - - - do - - - - - -	243.54 - 232.21	233.30 - 219.43	226.27 - 212.96	248.08 - 243.19
Range group 3 - - - do - - - - - -	232.20 - 214.80	219.42 - 206.41	212.95 - 201.58	243.18 - 238.59
Range group 4 - - - do - - - - - -	214.79 - 197.40	206.40 - 193.40	201.57 - 190.20	238.58 - 234.00
Age at 50 percent production,				
Average - - - - - - - - - - days -	175.2	175.6	175.2	167.9
Range group 1 - - - - - - - -do- -	156.0 - 165.6	165.0 - 170.3	169.0 - 172.1	159.0 - 163.5
Range group 2 - - - - - - - -do- -	165.7 - 175.2	170.4 - 175.6	172.2 - 175.2	163.6 - 167.9
Range group 3 - - - - - - - -do- -	175.3 - 183.6	175.7 - 179.8	175.3 - 178.6	168.0 - 171.0
Range group 4 - - - - - - - -do- -	183.7 - 192.0	179.9 - 184.0	178.7 - 182.0	171.1 - 174.0
Growing mortality,				
Average - - - - - - - - percent -	5.93	11.75	6.48	3.38
Range group 1 - - - - - - - do - -	0.00 - 2.97	6.00 - 8.88	3.30 - 4.89	0.00 - 1.69
Range group 2 - - - - - - - do - -	2.98 - 5.93	8.89 - 11.75	4.90 - 6.48	1.70 - 3.38
Range group 3 - - - - - - - do - -	5.94 - 8.97	11.76 - 17.88	6.49 - 12.84	3.39 - 5.24
Range group 4 - - - - - - - do - -	8.98 - 12.00	17.89 - 24.00	12.85 - 19.20	5.25 - 7.10
Laying mortality,				
Average - - - - - - - - percent -	9.99	9.22	11.30	14.47
Range group 1 - - - - - - - do - -	0.00 - 5.00	1.70 - 5.46	4.90 - 8.10	6.30 - 10.39
Range group 2 - - - - - - - do - -	5.01 - 9.99	5.47 - 9.22	8.11 - 11.30	10.40 - 14.47
Range group 3 - - - - - - - do - -	10.00 - 15.65	9.23 - 13.91	11.31 - 18.85	14.48 - 19.14
Range group 4 - - - - - - - do - -	15.66 - 21.30	13.92 - 18.60	18.86 - 26.40	19.15 - 23.80
Egg weight				
Average - - - - - ounces/dozen -	25.30	25.19	24.95	25.04
Range group 1 - - - - - do - - - -	27.40 - 26.35	26.20 - 25.69	26.10 - 25.52	26.30 - 25.67
Range group 2 - - - - - do - - - -	26.34 - 25.30	25.68 - 25.19	25.51 - 24.95	25.66 - 25.04
Range group 3 - - - - - do - - - -	25.29 - 24.80	25.18 - 24.59	24.94 - 24.22	25.03 - 24.62
Range group 4 - - - - - do - - - -	24.79 - 24.30	24.58 - 24.00	24.21 - 23.50	24.61 - 24.20
Large and extra large eggs,				
Average - - - - - - - - percent -	70.83	84.37	64.60	76.57
Range group 1 - - - - - - - do - -	89.10 - 79.96	92.00 - 88.18	78.40 - 71.50	88.80 - 82.68
Range group 2 - - - - - - - do - -	79.95 - 70.83	88.17 - 84.37	71.49 - 64.60	82.67 - 76.57
Range group 3 - - - - - - - do - -	70.82 - 64.41	84.36 - 79.83	64.59 - 54.70	76.56 - 71.68
Range group 4 - - - - - - - do - -	64.40 - 58.00	79.82 - 75.30	54.69 - 44.80	71.67 - 66.80
Feed per pound of eggs,				
Average - - - - - - - -pounds -	2.802	2.890	2.713	2.748
Range group 1 - - - - - - - do - -	2.540 - 2.671	2.550 - 2.720	2.480 - 2.597	2.650 - 2.699
Range group 2 - - - - - - - do - -	2.672 - 2.802	2.721 - 2.890	2.598 - 2.713	2.700 - 2.748
Range group 3 - - - - - - - do - -	2.803 - 2.951	2.891 - 3.240	2.714 - 2.897	2.749 - 2.874
Range group 4 - - - - - - - do - -	2.952 - 3.100	3.241 - 3.590	2.898 - 3.080	2.875 - 3.000
Albumen quality,				
Average - - - - - - Haugh Units -	77.24	79.07	80.79	80.92
Range group 1 - - - - - - do - - -	83.40 - 80.32	82.30 - 80.68	84.20 - 82.49	84.30 - 82.61
Range group 2 - - - - - - do - - -	80.31 - 77.24	80.67 - 79.07	82.48 - 80.79	82.60 - 80.92
Range group 3 - - - - - - do - - -	77.23 - 75.22	79.06 - 76.68	80.78 - 78.74	80.91 - 79.01
Range group 4 - - - - - - do - - -	75.21 - 73.20	76.67 - 74.30	78.73 - 76.70	79.00 - 77.10
Blood spots, all sizes,				
Average - - - - - - - - percent -	2.49	4.21	3.69	4.21
Range group 1 - - - - - - - do - -	0.00 - 1.25	0.70 - 2.46	0.60 - 2.15	2.10 - 3.16
Range group 2 - - - - - - - do - -	1.26 - 2.49	2.47 - 4.21	2.16 - 3.69	3.17 - 4.21
Range group 3 - - - - - - - do - -	2.50 - 5.05	4.22 - 8.81	3.70 - 5.00	4.22 - 6.11
Range group 4 - - - - - - - do - -	5.06 - 7.60	8.82 - 13.40	5.01 - 6.30	6.12 - 8.00

Table 5.--Range group ranking for stock entered in 1966-67 random sample egg production tests

ENTRY IDENTIFICATION	TEST	BREEDING		STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Andrews, J. J., R. R. #3, Chilliwack, British Columbia														
Andrews, B. C.	B. C.	WL	SX	Andrews B 31 ----- 2	3	2	2	4	4	4	1	3	3	
Andrews, B. C.	C. C.	WL	SX	Andrews B 31 ----- 2	2	1	3	3	3	3	1	3	1	
Animal Research Institute, Ottawa, Ontario														
A. R. I., Ont.	C. C.	WL	PS	Random Bred ----- 4	4	4	3	1	4	4	4	2	3	
Animal Research Institute, Kentville, Nova Scotia														
Kentville, N. S.	B. C.	WL	PS	Kentville R.B.C. -- 4	3	3	2	4	4	4	3	4	4	
A. R. I., N. S.	C. C.	WL	PS	Kentville R.B.C. -- 3	3	3	4	2	3	3	3	3	3	
Anthony, Geo. M. & Sons, Strausstown, Pennsylvania														
Anthony, Pa.	Mo.-C.	WL	SX	Anthony ---------- 4	4	4	3	4	2	2	3	1	3	
Anthony, Pa.	Mo.-F.	WL	SX	Anthony ---------- 1	1	3	3	2	3	3	1	2	2	
Anthony, Pa.	N. J.	WL	SX	Anthony ---------- 3	3	4	1	2	3	2	3	1	4	
Anthony, Pa.	N. Y.	WL	SX	Anthony ---------- 3	3	3	2	2	3	3	1	2	1	
Anthony, Pa.	Pa.	WL	SX	Anthony ---------- 2	2	2	1	2	4	3	1	3	2	
Anthony, Pa.	Tenn.	WL	SX	Anthony ---------- 2	2	3	2	2	2	2	2	1	2	
Anthony, Pa.	Wis.	WL	SX	Anthony ---------- 3	3	3	3	4	3	3	2	3	3	
Arbor Acres Farm, Inc., Glastonbury, Connecticut														
Arbor Acres, Conn.	Fla.	WL	SX	Queen ---------- 4	4	4	4	4	3	3	3	2	4	
Babcock Poultry Farm, Inc., Ithaca, New York														
Babcock, N. Y. (Stewart, Alta.)	B. C.	WL	SX	Babcock B-300 ---- 1	1	1	1	1	2	3	1	3	4	
Babcock, N. Y. (Hogsett, Calif.)	Calif.	WL	SX	Babcock B-300 ---- 1	1	2	1	1	1	1	1	3	4	
Babcock, N. Y. (Janz, Man.)	C. C.	WL	SX	Babcock B-300 ---- 1	1	1	1	1	1	1	1	3	3	
Babcock, N. Y. (A. Gulf, B. Hodges, Fla.)	Fla.	WL	SX	Babcock B-300 ---- 1	1	1	2	1	2	2	1	4	4	
Babcock, N. Y. (Mettings, Minn.)	Minn.	WL	SX	Babcock B-300 ---- 1	1	1	2	1	3	3	1	4	3	
Babcock, N. Y.	Mo.-C.	WL	SX	Babcock B-300 ---- 1	1	1	4	3	3	3	1	4	2	
Babcock, N. Y.	Mo.-F.	WL	SX	Babcock B-300 ---- 1	1	1	1	2	2	2	1	3	1	
Babcock, N. Y. (Babcock, Pa.)	N. J.	WL	SX	Babcock B-300 ---- 1	1	1	2	1	4	3	1	4	1	
Babcock, N. Y. (Harrold's, Ga.)	N. C.	WL	SX	Babcock B-300 ---- 1	2	1	3	3	3	3	1	4	4	
Babcock, N. Y. (Babcock, Pa.)	Pa.	WL	SX	Babcock B-300 ---- 1	1	1	4	3	3	3	1	4	3	
Babcock, N. Y. (Riverside, Tenn.)	Tenn.	WL	SX	Babcock B-300 ---- 1	1	1	2	2	2	3	1	3	3	
Babcock, N. Y. (Texas hatcheries)	Texas	WL	SX	Babcock B-300 ---- 2	2	1	1	1	2	2	2	3	4	
Babcock, N. Y. (Peck's, Wis.)	Wis.	WL	SX	Babcock B-300 ---- 3	2	1	3	3	2	3	2	4	2	
Babcock Poultry Farm, Inc., Ithaca, New York														
Babcock, N. Y. (Babcock, Pa.)	Pa.	WL	SX	Babcock B-310 ---- 2	3	4	4	2	3	3	2	3	2	
Babcock, N. Y.	Tenn.	WL	SX	Babcock B-310 ---- 3	4	2	2	1	1	3	3	2	2	
Babcock, N. Y. (Gulf Coast, Fla.)	Texas	WL	SX	Babcock B-310 ---- 2	3	3	1	1	2	2	1	2	3	

Table 5. --Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Babcock Poultry Farm, Inc., Ithaca, New York													
Babcock, N. Y. (Hogsett, Calif.)	Calif.	CG x WL BX	Babcock B-370	2	1	1	4	1	3	3	3	4	2
Babcock Poultry Farm, Inc., Ithaca, New York													
Babcock, N. Y.	Mo.-F.	RIR x BPR BX	Babcock B-390	3	3	3	1	3	2	1	4	4	4
Babcock, N. Y.	N. H.	RIR x BPR BX	Babcock B-390	3	2	3	1	2	3	3	4	4	4
Babcock, N. Y.	N. Y.	RIR x BPR BX	Babcock B-390	3	2	2	3	2	2	2	4	4	4
Babcock, N. Y. (Babcock, Pa.)	Pa.	RIR x BPR BX	Babcock B-390	3	1	2	1	1	2	2	4	4	4
Brender's Leghorns, Ferndale, New York													
Brender's, N. Y.	Minn.	WL SX	Money Maker	3	4	3	3	4	2	2	3	2	1
Brender's, N. Y.	N. Y.	WL SX	Money Maker	3	4	2	2	3	3	2	3	3	2
Burling Hatchery, Oxford, Pennsylvania													
Burling, Pa.	Pa.	RIR x WPR BX	Golden Tri-Cross	2	1	3	2	2	2	2	3	2	4
Cameron Leghorn Res. Farm, Beaver Springs, Pennsylvania													
Cameron, Pa.	Mo.-F.	WL SX	Cameron #924	2	3	4	4	3	3	2	3	2	2
Cameron, Pa.	Pa.	WL SX	Cameron #924	3	2	3	3	3	2	2	3	3	2
Cameron, Pa.	Tenn.	WL SX	Cameron #924	3	2	3	1	2	3	2	3	1	3
Carey Farms, Marion, Ohio													
Carey, Ohio	Mo.-F.	WL IN	Carey's New Nick	1	1	1	2	4	3	3	1	3	2
Carey, Ohio	Pa.	WL IN	Carey's New Nick	3	3	2	3	4	4	3	2	4	2
Carey Farms, Marion, Ohio													
Carey, Ohio	Tenn.	Syn. x WL BX	Carey Spots	2	2	2	1	3	3	3	2	4	2
Cashman Leghorn Farm, Webster, Kentucky													
Cashman, Ky. (Bray, Ontario)	C. C.	WL IN	Cashman Hi-Cash	3	3	4	2	3	2	2	3	3	3
Cashman, Ky. (Minn. Dassel, Minn.)	Minn.	WL IN	Cashman Hi-Cash	4	4	4	2	1	3	2	4	3	3
Cashman, Ky. (Tharp, Ark.)	Mo.-C.	WL IN	Cashman Hi-Cash	1	1	3	4	2	3	3	1	3	3
Cashman, Ky.	Mo.-F.	WL IN	Cashman Hi-Cash	2	2	4	1	1	3	2	2	3	2
Cashman, Ky. (Parks, N. Y.)	N. Y.	WL IN	Cashman Hi-Cash	4	4	4	3	4	4	4	4	4	2
Cashman, Ky.	N. C.	WL IN	Cashman Hi-Cash	2	1	3	3	1	3	2	3	3	4
Cashman, Ky.	Tenn.	WL IN	Cashman Hi-Cash	2	1	4	2	2	3	3	3	3	3
Cashman Leghorn Farm, Webster, Kentucky													
Cashman, Ky.	Fla.	Syn. x WL INX	Cashman Astronauts	3	2	3	3	3	2	2	2	4	2
Cashman, Ky. (Tharp, Ark.)	Mo.-C.	Syn. x WL INX	Cashman Astronauts	3	3	4	2	1	1	1	2	4	2
Cashman, Ky.	Mo.-F.	Syn. x WL INX	Cashman Astronauts	3	3	3	1	4	2	2	2	4	2
Cashman, Ky.	Texas	Syn. x WL INX	Cashman Astronauts	3	3	4	1	1	1	1	3	3	4

Table 5. --Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING		STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Colonial Poultry Farms, Pleasant Hill, Missouri														
Colonial, Mo.	Fla.	WL	IN	True-Line 365 B--- 3	3	2	3	2	4	3	2	2	4	
Colonial, Mo. (Colonial, Minn.)	Minn.	WL	IN	True-Line 365 B--- 2	2	1	4	3	4	4	2	3	4	
Colonial, Mo.	Mo.-C.	WL	IN	True-Line 365 B--- 2	2	1	1	2	4	3	1	3	4	
Colonial, Mo.	Mo.-C.	WL	IN	True-Line 365 B--- 3	3	3	2	3	4	4	3	3	2	
Colonial, Mo.	Mo.-F.	WL	IN	True-Line 365 B--- 1	1	1	2	2	3	3	1	2	2	
Colonial, Mo.	N. H.	WL	IN	True-Line 365 B--- 1	1	1	1	2	4	4	1	3	3	
Colonial, Mo. (Colonial, Ala.)	N. C.	WL	IN	True-Line 365 B--- 4	2	1	2	3	4	4	3	3	3	
Colonial, Mo.	Pa.	WL	IN	True-Line 365 B--- 2	2	1	3	2	4	4	1	3	2	
Colonial, Mo. (Colonial, Ala.)	Tenn.	WL	IN	True-Line 365 B--- 3	2	2	1	1	3	3	2	2	3	
Colonial, Mo.	Texas	WL	IN	True-Line 365 B--- 3	3	1	2	3	3	3	3	2	4	
Colonial Poultry Farms, Pleasant Hill, Missouri														
Colonial, Mo.	Mo.-F.	---	INX	True-Line 365 H--- 1	2	3	4	1	3	3	1	2	1	
Davis, Joe K., Hatchery, Earl, North Carolina														
Davis, N. C.	Calif.	RIR x BPR	BX	Davis Combiner --- 3	3	3	3	3	2	1	4	3	1	
Davis, N. C.	Mo.-F.	RIR x BPR	BX	Davis Combiner --- 3	3	3	3	1	1	1	4	3	4	
Davis, N. C.	N. H.	RIR x BPR	BX	Davis Combiner --- 3	3	2	2	3	1	2	3	3	2	
Davis, N. C.	N. C.	RIR x BPR	BX	Davis Combiner --- 4	1	3	2	1	1	1	3	3	3	
Davis, Joe K., Hatchery, Earl, North Carolina														
Davis, N. C.	Tenn.	RIR	PS	Davis Red--------- 2	3	3	1	2	2	1	3	2	4	
Demler Farms, Inc., Anaheim, California														
Demler, Calif. (Sudermans, B. C.)	B. C.	WL	SX	Demler D-65 ------ 3	3	3	4	4	2	2	1	2	2	
Demler, Calif.	Calif.	WL	SX	Demler D-65 ------ 3	3	4	3	3	3	3	3	2	2	
Demler, Calif.	Mo.-F.	WL	SX	Demler D-65 ------ 3	3	3	3	3	3	3	3	3	1	
Demler, Calif.	N. J.	WL	SX	Demler D-65 ------ 2	3	4	2	4	2	2	2	3	1	
Demler, Calif.	N. C.	WL	SX	Demler D-65 ------ 4	3	3	3	2	2	2	3	3	1	
Demler, Calif.	Pa.	WL	SX	Demler D-65 ------ 4	4	4	3	4	2	2	2	2	2	
Demler, Calif.	Tenn.	WL	SX	Demler D-65 ------ 3	3	2	4	2	2	2	3	2	3	
Demler, Calif.	Texas	WL	SX	Demler D-65 ------ 3	4	3	3	3	3	3	3	1	2	
Demler, Calif.	Wis.	WL	SX	Demler D-65 ------ 3	4	4	4	2	2	2	3	2	2	
Demler Farms, Inc., Anaheim, California														
Demler, Calif.	Calif.	Syn. x WL	BX	Demler Royal ----- 3	3	3	3	3	3	3	3	3	3	
Demler Farms, Inc., Anaheim, California														
Demler, Calif.	Calif.	WL	SX	Regal II ---------- 3	3	3	1	1	3	3	3	3	1	
deZeeuw Leghorn Breeder, South Edmonton, Alberta														
deZeeuw, Alta.	B. C.	WL	SX	deZeeuw 752 ------ 4	4	4	4	2	3	3	4	3	4	
deZeeuw, Alta.	C. C.	WL	SX	deZeeuw 752 ------ 3	3	4	1	2	3	2	3	3	3	

Table 5.--Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING		STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Erath Egg Farm, Stephenville, Texas														
Erath, Texas	Texas	---	INX	Erath Mestiza ----- 1	1	1	2	1	3	3	1	3	2	
Fisher Poultry Farm, Ltd., Ayton, Ontario														
Fisher, Ont.	C. C.	WL	SX	Fisher 103 -------- 2	3	3	2	3	3	3	2	3	1	
Garber Poultry Breeding Farm, Modesto, California														
Garber, Calif.	B. C.	WL	SX	Garber G 200------ 1	1	4	2	1	2	1	2	1	1	
Garber, Calif.	Calif.	WL	SX	Garber G 200------ 3	3	3	2	2	2	1	3	1	2	
Garber, Calif. (Orange Blossom, Fla.)	Fla.	WL	SX	Garber G 200------ 2	2	3	1	1	2	1	3	1	1	
Garber, Calif. (Fairfax, Minn.)	Minn.	WL	SX	Garber G 200------ 3	2	3	3	2	2	2	1	1	2	
Garber, Calif.	Mo.-F.	WL	SX	Garber G 200------ 3	3	3	3	2	2	2	3	1	1	
Garber, Calif.	Pa.	WL	SX	Garber G 200------ 3	3	4	2	2	2	2	2	1	1	
Garber, Calif.	Texas	WL	SX	Garber G 200------ 3	4	4	1	3	2	2	3	1	1	
Garber, Calif.	Wis.	WL	SX	Garber G 200------ 2	4	3	3	3	2	2	2	1	1	
Garber Poultry Breeding Farm, Modesto, California														
Garber, Calif.	Calif.	CG x WL	BX	Garber G x 291 ---- 3	3	2	2	3	1	2	3	3	2	
Garber, Calif.	Mo.-C.	CG x WL	BX	Garber G x 291 ---- 2	2	1	1	3	1	2	1	3	1	
Garber, Calif.	N. C.	CG x WL	BX	Garber G x 291 ---- 1	1	1	1	2	2	3	1	3	1	
Garber, Calif.	Pa.	CG x WL	BX	Garber G x 291 ---- 1	1	2	3	2	3	3	1	4	2	
Garber, Calif.	Tenn.	CG x WL	BX	Garber G x 291 ---- 3	2	1	1	3	1	2	2	3	1	
Garrison, Earl W., Bridgeton, New Jersey														
Garrison, N. J.	N. H.	RIR x WPR	BX	Golden Sex Link --- 3	3	2	1	3	3	3	4	3	2	
Garrison, N. J.	Pa.	RIR x WPR	BX	Golden Sex Link --- 3	2	2	2	2	2	2	4	3	4	
Garrison, Earl W., Bridgeton, New Jersey														
Garrison, N. J.	Pa.	RIR x BPR	BX	Black Gold Sex Link 3	2	3	3	2	2	2	4	4	3	
Ghostley's Poultry Farm, Inc., Anoka, Minnesota														
Ghostley, Minn.	Calif.	WL	SX	Ghostley Pearl 63-- 3	3	3	3	3	2	2	2	1	3	
Ghostley, Minn. (United, Fla.)	Fla.	WL	SX	Ghostley Pearl 63-- 3	3	2	3	3	1	1	3	1	3	
Ghostley, Minn.	Minn.	WL	SX	Ghostley Pearl 63-- 2	2	1	2	3	3	3	1	2	1	
Ghostley, Minn.	N. J.	WL	SX	Ghostley Pearl 63-- 2	2	2	4	2	4	4	2	1	1	
Ghostley, Minn.	Texas	WL	SX	Ghostley Pearl 63-- 1	1	1	3	3	2	2	1	2	3	
Ghostley, Minn.	Wis.	WL	SX	Ghostley Pearl 63-- 3	4	3	2	3	3	3	3	4	3	
Ghostley's Poultry Farm, Inc., Anoka, Minnesota														
Ghostley, Minn. (Wheelock, Pa.)	Pa.	WL	SX	Ghostley Cage Queen 1	1	1	3	2	3	3	2	2	3	
Hansen's Leghorn City, Puyallup, Washington														
Hansen's, Wash.	Mo.-F.	WL	SX	Criss Cross H 25 -- 2	2	3	3	2	3	3	2	2	2	
Hansen's, Wash.	Pa.	WL	SX	Criss Cross H 25 -- 3	3	4	3	3	3	3	2	2	2	
Hansen's, Wash.	Tenn.	WL	SX	Criss Cross H 25 -- 4	4	4	3	2	3	4	3	1	1	

Table 5. --Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Hanson, J. A. & Son, Corvallis, Oregon													
Hanson, Oreg.	Mo.-F.	WL SX	Super Nick A	3	3	2	3	3	4	4	3	1	2
Hanson, Oreg.	Tenn.	WL SX	Super Nick A	4	4	4	4	4	4	4	3	1	2
Harco Orchards & Poultry Farms, South Easton, Massachusetts													
Harco, Mass.	Mo.-F.	RIR x BPR BX	Harco Sex Link	3	2	4	1	1	1	1	3	2	4
Harco, Mass.	N. H.	RIR x BPR BX	Harco Sex Link	1	2	2	2	3	1	1	2	1	4
Harco, Mass.	N. Y.	RIR x BPR BX	Harco Sex Link	1	1	2	2	2	1	1	2	3	4
Harco, Mass.	Pa.	RIR x BPR BX	Harco Sex Link	2	1	2	2	2	1	1	3	3	3
Hardy, C. Nelson & Son, Essex, Massachusetts													
Hardy, Mass.	N. H.	RIR x BPR BX	Deluxe Sex Link	3	3	3	1	3	2	2	4	3	3
Hardy Poultry Farm, Inc., Chester, New Hampshire													
Hardy, N. H.	N. H.	--- BX	Hardy's Sex Link	3	3	4	2	3	1	1	4	4	3
Hardy Poultry Farm, Inc., Chester, New Hampshire													
Hardy, N. H.	N. H.	RIR PS	Hardy Red	4	4	4	4	4	4	3	4	1	2
Heisdorf & Nelson Farms, Redmond, Washington													
H & N, Wash. (H & N, Calif.)	Calif.	WL SX	H & N Nick Chick	3	3	2	2	3	2	2	2	1	4
H & N, Wash. (Florida hatcheries)	Fla.	WL SX	H & N Nick Chick	2	2	1	2	1	2	2	2	1	2
H & N, Wash. (Mo-Ark, Mo.)	Mo.-C.	WL SX	H & N Nick Chick	2	2	2	2	2	3	3	2	1	3
H & N, Wash. (Weidner's, N. Y.)	N. Y.	WL SX	H & N Nick Chick	2	2	2	1	1	4	3	2	2	1
H & N, Wash. (Seven Oaks, S. C.)	N. C.	WL SX	H & N Nick Chick	3	2	3	1	2	3	3	3	1	2
H & N, Wash. (Klongland, Wis.)	Wis.	WL SX	H & N Nick Chick	3	3	2	2	2	3	4	2	4	4
Honegger Breeder Hatchery, Forrest, Illinois													
Honegger, Ill.	B. C.	WL SX	Honegger Layer	3	2	3	3	2	2	2	3	4	3
Honegger, Ill. (White Farms, Calif.)	Calif.	WL SX	Honegger Layer	3	3	3	3	3	3	3	3	3	3
Honegger, Ill. (Goodine's, N. B.)	C. C.	WL SX	Honegger Layer	1	1	1	1	1	3	3	1	2	2
Honegger, Ill. (Browder's, Pine Air, Fla.)	Fla.	WL SX	Honegger Layer	2	2	3	1	2	2	1	2	3	3
Honegger, Ill. (Jack Frost, Minn.)	Minn.	WL SX	Honegger Layer	3	3	2	2	4	3	3	2	4	3
Honegger, Ill.	Mo.-F.	WL SX	Honegger Layer	2	2	3	1	2	3	3	2	3	1
Honegger, Ill.	N. H.	WL SX	Honegger Layer	3	2	2	1	3	4	4	2	2	2
Honegger, Ill.	N. J.	WL SX	Honegger Layer	3	2	3	2	2	3	2	3	2	1
Honegger, Ill. (FCX, N. C.)	N. C.	WL SX	Honegger Layer	3	3	2	2	3	3	3	2	3	3
Honegger, Ill. (Crumley, Tenn.)	Tenn.	WL SX	Honegger Layer	4	4	3	4	4	3	3	4	2	3
Cherokee, Texas	Texas	WL SX	Honegger Layer	3	3	3	1	2	3	3	3	3	4
Honegger, Ill.	Texas	WL SX	Honegger Layer	2	2	3	2	2	3	2	3	3	3
Honegger, Ill. (Sunnyside, Wis.)	Wis.	WL SX	Honegger Layer	3	3	2	2	3	3	2	2	3	2

Table 5.--Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Hubbard Farms, Inc., Walpole, New Hampshire													
Hubbard, N. H.	N. H.	Syn. x NH BX	Golden Comet ----- 2	2	2	3	2	2	2	2	2	3	
Hubbard, N. H. (Hubbard, Pa.)	N. C.	Syn. x NH BX	Golden Comet ----- 4	3	1	2	2	1	1	3	2	2	
Hubbard, N. H.	Pa.	Syn. x NH BX	Golden Comet ----- 2	2	2	1	2	2	1	3	3	3	
Hy-Line Poultry Farm, Des Moines, Iowa													
Hy-Line, Iowa (Poehlmann, Calif.)	Calif.	--- INX	Hy-Line 934------- 1	1	2	1	1	1	1	1	4	1	
Hy-Line, Iowa (Wallace, Fla.)	Fla.	--- INX	Hy-Line 934------- 2	2	3	2	2	1	1	2	4	1	
Hy-Line, Iowa	Mo.-C.	--- INX	Hy-Line 934------- 2	2	2	3	3	1	1	1	4	2	
Hy-Line, Iowa	Mo.-F.	--- INX	Hy-Line 934------- 1	1	2	2	1	2	2	1	4	1	
Hy-Line, Iowa (Tar Heel, N. C.)	N. C.	--- INX	Hy-Line 934------- 1	1	2	1	1	1	1	1	4	1	
Hy-Line, Iowa (Neuhauser, Ohio)	Tenn.	--- INX	Hy-Line 934------- 3	3	2	2	3	1	2	2	3	1	
Hy-Line Poultry Farm, Des Moines, Iowa													
Rothway, Ariz.	Ariz.	--- INX	Hy-Line 934-D ---- 2	2	2	4	1	2	2	2	3	4	
Hy-Line, Iowa (Poehlmann, Calif.)	Calif.	--- INX	Hy-Line 934-D ---- 1	1	2	2	2	2	2	1	4	1	
Hy-Line, Iowa	Mo.-C.	--- INX	Hy-Line 934-D ---- 4	4	3	3	4	1	2	3	4	1	
Hy-Line Poultry Farm, Des Moines, Iowa													
Hy-Line, Iowa (Hy-Line, Ont.)	C. C.	--- INX	Hy-Line 934-E ---- 1	1	2	1	1	1	1	1	4	1	
Johnson's, Texas (Hy-Line, Iowa)	Texas	--- INX	Hy-Line 934-E ---- 2	2	4	2	1	1	1	1	4	3	
Hy-Line Poultry Farm, Des Moines, Iowa													
Rothway, Ariz.	Ariz.	--- INX	Hy-Line 938------- 1	4	4	1	4	1	1	1	4	1	
Hy-Line, Iowa (Hy-Line, Minn.)	Minn.	--- INX	Hy-Line 938------- 2	2	3	1	2	1	1	1	4	1	
Hy-Line, Iowa	Mo.-F.	--- INX	Hy-Line 938------- 3	3	2	1	3	2	2	1	4	1	
Hy-Line, Iowa	N. H.	--- INX	Hy-Line 938------- 1	1	1	2	1	2	2	1	4	1	
Hy-Line, Iowa (Hy-Line, Iowa)	N. J.	--- INX	Hy-Line 938------- 4	4	3	3	2	1	1	3	4	1	
Hy-Line, Iowa (Crumley, Tenn.)	Tenn.	--- INX	Hy-Line 938------- 1	2	2	3	1	1	1	1	4	1	
Hy-Lay, Texas (Hy-Line, Iowa)	Texas	--- INX	Hy-Line 938------- 3	3	3	2	3	1	1	2	4	1	
Kazmeier, Texas (Hy-Line, Iowa)	Texas	--- INX	Hy-Line 938------- 3	3	3	4	2	1	1	1	4	1	
Ideal Poultry Breeding Farm, Cameron, Texas													
Ideal, Texas	Calif.	Syn. x WL BX	Ideal 236---------- 2	2	3	1	2	1	2	2	3	3	
Ideal, Texas	Minn.	Syn. x WL BX	Ideal 236---------- 3	4	3	2	4	2	1	3	3	1	
Ideal, Texas	Mo.-F.	Syn. x WL BX	Ideal 236---------- 1	1	2	2	2	3	2	1	3	1	
Ideal, Texas	N. J.	Syn. x WL BX	Ideal 236---------- 3	2	2	4	3	3	3	2	3	1	
Ideal, Texas	N. Y.	Syn. x WL BX	Ideal 236---------- 2	2	2	1	2	3	3	1	4	2	
Ideal, Texas	N. C.	Syn. x WL BX	Ideal 236---------- 1	1	3	2	2	2	1	1	3	2	
Ideal, Texas	Tenn.	Syn. x WL BX	Ideal 236---------- 1	1	2	2	1	2	1	1	3	1	
Ideal, Texas	Texas	Syn. x WL BX	Ideal 236---------- 2	2	3	3	3	2	2	2	3	2	

Table 5. --Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Indiana Farm Bureau Coop., Indianapolis, Indiana													
Ind. Farm Bureau Coop., Ind.	N. Y.	WL SX	Princess 55	3	3	2	3	3	3	3	2	1	1
Ind. Farm Bureau Coop., Ind. (Coop., Ind.)	N. C.	WL SX	Princess 55	3	3	3	3	4	2	2	2	1	1
Ind. Farm Bureau Coop., Ind.	Pa.	WL SX	Princess 55	3	4	4	1	4	4	3	2	1	1
Indiana Farm Bureau Coop., Indianapolis, Indiana													
Ind. Farm Bureau Coop., Ind.	Pa.	WL SX	Dutchess 60	2	3	4	4	3	3	3	1	1	3
Ind. Farm Bureau Coop., Ind.	Wis.	WL SX	Dutchess 60	3	2	4	1	3	3	2	3	1	4
Indiana Farm Bureau Coop., Indianapolis, Indiana													
Ind. Farm Bureau Coop., Ind.	Mo.-C.	WL SX	Countess 75	3	3	3	3	4	3	2	3	1	2
Kimber Farms, Inc., Fremont, California													
Arizona State, Ariz.	Ariz.	WL SX	Kimber K 137	4	4	4	4	1	4	4	4	1	1
Kimber, Calif. (Prairie, Sask.)	C. C.	WL SX	Kimber K 137	1	1	1	3	1	3	3	1	1	1
Kimber, Calif. (Hubbard, N. C.)	N. C.	WL SX	Kimber K 137	1	2	2	1	3	3	3	1	1	1
Kimber, Calif.	Pa.	WL SX	Kimber K 137	2	2	2	2	2	4	4	1	1	1
Kimber Farms, Inc., Fremont, California													
Kimber, Calif. (Kimberchiks, B. C.)	B. C.	WL SX	Kimber K 137 A	1	2	3	2	2	2	2	1	1	1
Kimber, Calif. (Kimber, Calif.)	Calif.	WL SX	Kimber K 137 A	1	1	2	1	1	2	2	1	1	3
Kimber, Calif. (Florida hatcheries)	Fla.	WL SX	Kimber K 137 A	1	1	1	1	1	3	3	1	1	1
Kimber, Iowa	Minn.	WL SX	Kimber K 137 A	1	1	2	2	1	4	3	1	1	2
Kimber, Calif. (Mo. Valley, Mo.)	Mo.-C.	WL SX	Kimber K 137 A	2	2	2	2	3	3	3	2	1	2
Kimber, Calif. (Larry's Kimberchiks, N. Y.)	N. Y.	WL SX	Kimber K 137 A	3	3	3	3	2	3	3	2	1	2
Kimber, Calif. (Moyer's, Pa.)	Pa.	WL SX	Kimber K 137 A	2	2	2	3	3	4	3	1	1	1
Kimber, Calif. (Wilke's, Wis.)	Wis.	WL SX	Kimber K 137 A	3	1	2	4	1	4	3	2	1	1
Kimber Farms, Inc., Fremont, California													
Kimber, Calif.	B. C.	WL SX	Kimber K 141	1	1	2	3	1	4	3	1	3	3
Kimber, Calif. (Kimber, Calif.)	Calif.	WL SX	Kimber K 141	1	2	3	2	1	2	2	1	2	3
Kimber, Calif. (Mo. Kimberchiks, Mo.)	Mo.-C.	WL SX	Kimber K 141	2	2	2	2	1	2	2	1	3	3
Kimber, Calif. (Meadowview, Wis.)	Wis.	WL SX	Kimber K 141	2	1	1	1	1	2	2	1	3	1
Kimber Farms, Inc., Fremont, California													
Arizona, Ariz.	Ariz.	WL SX	Kimber K 155	4	1	4	1	3	4	4	3	2	4
Kimber, Calif. (Kimber, Calif.)	Calif.	WL SX	Kimber K 155	1	1	2	1	1	3	3	2	1	1
Lawton, A. C. & Sons, Foxboro, Massachusetts													
Lawton, Mass.	Mo.-F.	RIR x WPR BX	Buff Sex Link	4	4	2	3	3	1	1	4	2	4
Lawton, Mass.	N. H.	RIR x WPR BX	Buff Sex Link	3	3	4	3	2	1	1	3	1	1
Lawton, Mass.	N. Y.	RIR x WPR BX	Buff Sex Link	2	2	3	3	1	1	1	3	3	4
Lawton, Mass.	Pa.	RIR x WPR BX	Buff Sex Link	4	2	4	2	1	1	1	4	3	4

Table 5.--Range group ranking for stock entered in 1960-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Mettling's Hatchery, Slayton, Minnesota													
Mettlings, Minn.	Minn.	CG x WL BX	Cal-Lyne	3	3	2	3	2	3	3	4	4	4
Missouri Valley Hatchery, Marshall, Missouri													
Mo. Valley, Mo.	Mo.-F.	WL SX	Best Egg Contest	1	1	3	2	1	3	3	1	1	2
Nelson, George F., Truro, Nova Scotia													
Nelson, N. S.	C.C. RIR(LSxRIR)	BX	Sex Link	3	4	2	2	4	2	3	4	3	4
North Central Regional Poultry Br. Lab., Lafayette, Indiana													
N. C. Reg. Plty., Ind.	Calif.	WL PS	Reg. Cornell Contr.	4	4	4	4	4	4	4	4	3	4
Purdue Reg., Ind.	Fla.	WL PS	Reg. Cornell Contr.	4	3	4	4	3	4	4	4	3	4
N. C. Reg. Plty., Ind.	Mo.-C.	WL PS	Reg. Cornell Contr.	4	4	4	2	2	4	4	4	2	3
N. C. Reg. Plty., Ind.	Mo.-F.	WL PS	Reg. Cornell Contr.	4	4	4	4	4	4	4	4	2	3
N. C. Reg. Plty., Ind.	N. Y.	WL PS	Reg. Cornell Contr.	3	3	2	2	3	3	3	3	2	3
N. C. Reg. Plty., Ind.	N. C.	WL PS	Reg. Cornell Contr.	4	4	4	4	4	4	4	4	2	4
N. C. Reg. Plty., Ind.	Tenn.	WL PS	Reg. Cornell Contr.	4	4	4	1	3	4	4	3	3	3
N. C. Reg. Plty., Ind.	Texas	WL PS	Reg. Cornell Contr.	4	4	4	3	2	4	4	4	2	3
N. C. Reg. Plty., Ind.	Wis.	WL PS	Reg. Cornell Contr.	4	4	3	2	2	4	4	4	3	3
North Central Regional Poultry Br. Lab., Lafayette, Indiana													
N. C. Reg. Plty., Ind.	Calif.	RIR x WL BX	R. Red x R. Cornell	4	3	3	3	2	3	3	4	3	3
Parks Poultry Farm, Altoona, Pennsylvania													
Parks, Pa.	Mo.-F.	WL SX	Keystone B-1	2	2	1	3	3	3	3	2	3	2
Parks, Pa.	N. H.	WL SX	Keystone B-1	1	1	1	1	1	3	3	1	2	3
Parks, Pa.	N. J.	WL SX	Keystone B-1	3	2	2	1	1	2	1	3	3	1
Parks, Pa.	N. Y.	WL SX	Keystone B-1	3	2	3	2	1	3	2	3	3	2
Parks, Pa.	N. C.	WL SX	Keystone B-1	1	1	1	4	1	3	3	1	3	4
Parks, Pa.	Pa.	WL SX	Keystone B-1	2	2	2	3	3	2	2	2	4	1
Parks Poultry Farm, Altoona, Pennsylvania													
Keystone, Pa.	Pa.	WL SX	Keystone K-1700	4	4	4	4	3	2	2	3	4	1
Parks Poultry Farm, Altoona, Pennsylvania													
Parks, Pa.	Mo.-F.	RIR x WPR BX	Sil-Go-Links	3	3	3	2	2	2	1	4	2	3
Parks, Pa.	Pa.	RIR x WPR BX	Sil-Go-Links	3	2	3	1	2	2	2	4	4	3
Parks Poultry Farm, Altoona, Pennsylvania													
Parks, Pa.	Pa.	CG x WL BX	Gray-Keys	3	2	3	4	2	4	4	2	2	1
Randall Hatchery & Breeding Farm, Cherry Valley, California													
Randall, Calif.	Calif.	CG x WL BX	Gray x Leghorn	2	2	2	1	2	1	2	3	2	2
Rapp Leghorn Farm, Inc., Farmingdale, New Jersey													
Rapp, N. J.	N. J.	WL SX	Rapp Linecross	4	4	3	3	4	2	2	4	2	4

Table 5. --Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING		STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Shaver Poultry Breeding Farm, Galt, Ontario														
Shaver, Ont. (A & M, Calif.)	Calif.	WL	SX	Starcross 288 ----- 1	1	3	1	3	1	1	1	2	3	
Shaver, Ont.	C. C.	WL	SX	Starcross 288 ----- 1	1	2	3	3	1	1	2	2	2	
Shaver, Ont. (Womer, Fla.)	Fla.	WL	SX	Starcross 288 ----- 1	1	1	3	2	1	1	1	4	1	
Shaver, Ont. (Silver Lake, Minn.)	Minn.	WL	SX	Starcross 288 ----- 2	3	3	2	2	2	1	2	2	1	
Shaver, Ont.	Mo.-C.	WL	SX	Starcross 288 ----- 1	1	3	1	1	1	1	1	3	2	
Shaver, Ont.	Mo.-F.	WL	SX	Starcross 288 ----- 1	1	3	3	2	2	1	1	3	2	
Shaver, Ont.	N. J.	WL	SX	Starcross 288 ----- 1	1	2	2	2	2	2	1	1	1	
Shaver, Ont. (Lakeland, Pa.)	N. Y.	WL	SX	Starcross 288 ----- 1	1	1	1	1	2	2	2	4	1	
Shaver, Ont. (Mid-Valley, Va.)	N. C.	WL	SX	Starcross 288 ----- 1	2	2	1	3	2	2	2	4	3	
Shaver, Ont. (Greider, Pa.)	Pa.	WL	SX	Starcross 288 ----- 1	1	2	3	2	2	2	1	3	1	
Shaver, Ont.	Tenn.	WL	SX	Starcross 288 ----- 1	2	4	4	2	2	1	2	1	2	
Shaver, Ont.	Texas	WL	SX	Starcross 288 ----- 1	1	2	3	3	2	1	1	2	2	
Shaver Poultry Breeding Farm, Galt, Ontario														
Shaver, Ont.	Mo.-C.	WL	SX	Starcross 292 ----- 1	2	2	4	4	1	1	1	3	2	
Starline Breeders Hatchery, Saskatoon, Saskatchewan														
Starline, Sask.	C. C.	CG x WL	BX	Pearlette --------- 3	3	2	1	3	2	2	3	3	1	
Starline, Sask.	Tenn.	CG x WL	BX	Pearlette --------- 4	4	2	1	4	2	2	3	3	1	
Stever Hatchery, Huntingdon, Pennsylvania														
Garrison, N. J.	N. J.	WL	SX	Stever SC-300 ----- 3	4	4	2	3	3	3	3	2	3	
Garrison, N. J. (Stevers, Pa.)	N. C.	WL	SX	Stever SC-300 ----- 4	4	4	4	3	3	3	3	4	2	
Stever, Pa.	Pa.	WL	SX	Stever SC-300 ----- 4	4	4	4	4	4	4	3	3	2	
Stone's Poultry Farm, Dinuba, California														
Pratt's, Ariz.	Ariz.	WL	SX	Stone H 56 -------- 4	3	1	1	2	3	3	3	2	1	
Stone's, Calif. (Napier, B. C.)	B. C.	WL	SX	Stone H 56 -------- 1	1	1	1	2	4	4	2	2	1	
Stone's, Calif.	Calif.	WL	SX	Stone H 56 -------- 3	3	2	2	3	3	3	2	2	2	
Stone's, Calif. (Hoover, Iowa)	Minn.	WL	SX	Stone H 56 -------- 4	3	1	3	2	4	4	4	3	3	
Stone's, Calif.	Mo.-C.	WL	SX	Stone H 56 -------- 4	4	2	4	3	2	2	4	1	1	
Stone's, Calif.	Mo.-F.	WL	SX	Stone H 56 -------- 3	3	2	2	3	4	4	3	2	1	
Stone's, Calif.	N. J.	WL	SX	Stone H 56 -------- 4	4	1	3	3	4	4	4	1	2	
Stone's, Calif. (Underwood, Ga.)	N. C.	WL	SX	Stone H 56 -------- 2	3	2	4	3	3	3	3	2	1	
Metz, Pa.	Pa.	WL	SX	Stone H 56 -------- 3	3	2	2	3	3	3	2	2	1	
Stone's, Calif.	Texas	WL	SX	Stone H 56 -------- 3	3	2	1	3	3	4	3	1	2	
Sturtevant Farms, Inc., Halifax, Massachusetts														
Sturtevant, Mass.	N. H.	RIR x BPR	BX	Black Sex Link ---- 3	3	3	1	2	2	2	3	3	2	
Sturtevant Farms, Inc., Halifax, Massachusetts														
Sturtevant, Mass.	N. H.	RIR x WPR	BX	Goldies ---------- 2	3	3	3	1	2	3	2	1	1	

Table 5.--Range group ranking for stock entered in 1966-67 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING		STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Tokai Poultry Farm, Ltd., Cape Province, South Africa														
Tokai, S. A.	Texas	WL	SX	WLBA	4	4	1	1	4	4	4	4	3	3
Townline Poultry Farm, Zeeland, Michigan														
Townline, Mich.	Mo.-F.	WL	SX	Townline SC-30	2	3	4	3	3	4	3	3	2	2
Triska, Eric, Edmonton, Alberta														
Triska, Alta.	C. C.	WL	SX	Belmont 292	2	2	3	3	3	3	3	2	2	4
Warren, J. J., Inc., North Brookfield, Massachusetts														
Warren, Mass. (Redline, B. C.)	B. C.	RIR x RIW	BX	Sex-Sal-Link-F	4	4	2	3	3	1	1	4	3	1
Warren, Mass. (Swift, Minn.)	Minn.	RIR x RIW	BX	Sex-Sal-Link-F	4	3	4	2	3	1	1	4	1	4
Warren, Mass.	Mo.-C.	RIR x RIW	BX	Sex-Sal-Link-F	4	4	2	1	1	2	3	4	2	4
Warren, Mass.	N. H.	RIR x RIW	BX	Sex-Sal-Link-F	3	3	4	3	3	2	2	2	4	1
Warren, Mass.	N. Y.	RIR x RIW	BX	Sex-Sal-Link-F	1	1	3	3	1	2	1	1	3	3
Warren, Mass. (Swift, Iowa)	Wis.	RIR x RIW	BX	Sex-Sal-Link-F	1	1	4	3	1	1	1	1	1	1
Webster Poultry Farm, Auburn, New York														
Webster, N. Y.	N. Y.	RIR	SX	New Red	4	3	3	4	3	2	2	4	2	4
Welp's Breeding Farm, Bancroft, Iowa														
Welp's, Iowa (Childer's, Calif.)	Calif.	WL	SX	Welpline 937	2	3	3	1	3	3	3	1	3	3
Welp's, Iowa	Minn.	WL	SX	Welpline 937	1	1	1	4	2	3	4	1	3	2
Welp's, Iowa (M. F. A., Mo.)	Mo.-F.	WL	SX	Welpline 937	2	3	3	2	3	3	3	1	3	2
Welp's, Iowa (Georgia, Ga.)	N. C.	WL	SX	Welpline 937	2	3	3	1	3	3	3	2	3	4
Welp's, Iowa	Tenn.	WL	SX	Welpline 937	1	1	1	1	1	3	3	1	2	2
Welp's, Iowa	Texas	WL	SX	Welpline 937	2	2	1	1	1	3	3	2	1	2
Welp's, Iowa (Salm's, Wis.)	Wis.	WL	SX	Welpline 937	2	2	2	3	2	3	2	2	3	2

RANDOM SAMPLE EGG PRODUCTION TEST ENTRIES AND CONDITIONS, 1966-67

Tests and Supervisors

Arizona Random Sample Test
Ernest L. Parker, Arizona State University, Tempe, Ariz. 85281

British Columbia Random Sample Egg Production Test, Abbotsford
C. W. Wood, British Columbia Department of Agriculture, Abbotsford, B. C., Canada

California Official Random Sample Egg Laying Test
Emery A. Johnson, Route 3, 2718 No. 99 Highway, Modesto, Calif. 95350

Central Random Sample Egg Production Test
M. S. Mitchell, Poultry Division, Canada Department of Agriculture, Ottawa, Ontario, Canada

Florida Random Sample Test
A. W. O'Steen, Chipley, Fla. 32428

Minnesota Random Sample Egg Production Test, Stillwater and St. Cloud
Robert E. Moehrle, Department of Agriculture, Dairy and Food, State Office Building, St. Paul, Minn. 55101

Missouri Random Sample Egg Production Test (Cage)
Charles W. McElyea, P. O. Box 109, Mountain Grove, Mo. 65711

Missouri Random Sample Egg Production Test (Floor)
Charles W. McElyea, P. O. Box 109, Mountain Grove, Mo. 65711

New Hampshire Multiple Unit Egg Production Test
W. C. Skoglund, Department of Poultry Science, University of New Hampshire, Durham, N. H. 03824

New Jersey Random Sample Egg Laying Test
John J. Dowling, Jr., Rutgers University, New Brunswick, N. J. 08903

Central New York Official Random Sample Poultry Test, Horseheads
J. H. Bruckner, Poultry Department, Cornell University, Ithaca, N. Y. 14850

North Carolina Random Sample Egg Laying Test, Salisbury
G. A. Martin, Poultry Extension Dept., North Carolina State University, Raleigh, N. C. 27607

Pennsylvania Random Sample Laying Test
Paul J. Turek, Route 2, Harrisburg, Pa. 17110

Tennessee Random Sample Laying Test
O. E. Goff, Poultry Department, University of Tennessee, Knoxville, Tenn. 37916

Texas Random Sample Egg Production Test
Bill H. Doran, Texas A & M University, College Station, Tex. 77843

Wisconsin Random Sample Egg Production Test, Oregon
Arnold Guthrie, Department of Agriculture, 4802 Sheboygan Avenue, Madison, Wis. 53702

Table 6.--Stock entered in 1966-67 tests

Breeder	Stock: Code	Stock: Strain or trade name	Number of entries	Tests entered: Ariz.	B. C.	Calif.	C. C.	Fla.	Minn.	Mo.-C.	Mo.-F.	N. H.	N. J.	N. Y.	N. C.	Pa.	Tenn.	Texas	Wis.
Andrews	602	Andrews B-31	2		X		X												
Animal Res. Inst.	145	Ottawa R. B.	1				X												
Animal Res. Inst.	570	Kentville R. B.	2		X		X												
Anthony	10	Anthony Leghorn	7							X	X		X	X		X	X		X
Arbor Acres	138	Arbor Acres Queen	1					X											
Babcock	307	Babcock B-300	13		X	X	X	X	X	X	X		X		X	X	X	X	X
Babcock	376	Babcock B-310	3													X	X	X	
Babcock	306	Babcock B-370	1			X													
Babcock	377	Babcock B-390	4								X	X		X		X			
Brender	230	Brender Money Maker	2						X					X					
Burling	361	Golden Tri-Cross	1													X			
Cameron	283	Cameron 924	3								X					X	X		
Carey	372	Carey's New Nick	2								X					X			
Carey	391	Carey Spots	1														X		
Cashman	31	Cashman Hi-Cash	7				X		X	X	X			X	X		X		
Cashman	304	Cashman Astronauts	4					X		X	X							X	
Colonial	289	True Line 365 B	10					X	X	XX	X	X			X	X	X	X	
Colonial	392	True Line 365 H	1								X								
Davis	309	Davis Combiner	4			X					X	X			X				
Davis	394	Davis Red	1														X		
Demler	371	Demler D-65	9		X	X					X		X		X	X	X	X	X
Demler	346	Demler Royal	1			X													
Demler	387	Demler Regal II	1			X													
deZeeuw	514	deZeeuw 752	2		X		X												
Erath	350	Erath Mestiza	1															X	
Fisher	518	Fisher 103	1				X												
Garber	66	Garber G200	8		X	X		X	X		X					X		X	X
Garber	65	Garber GX291	5			X				X					X	X	X		
Garrison	69	Golden Sex Link	2									X				X			
Garrison	379	Black Gold Sex Link	1													X			
Ghostley	338	Ghostley Pearl 63	6			X		X	X				X					X	X
Ghostley	373	Ghostley Cage Queen	1													X			
Hansen	80	Criss Cross H-25	3								X					X	X		
Hanson	322	Hanson Super Nick A	2								X						X		
Harco	225	Harco Sex Link	4								X	X		X		X			
Hardy (Mass.)	86	Deluxe Sex Link	1									X							
Hardy (N. H.)	383	Hardy's Sex Link	1									X							
Hardy (N. H.)	393	Hardy Red	1									X							
Heisdorf & Nelson	88	N & N Nick Chick	6			X		X		X				X	X				X

Table 6. --Stock entered in 1966-67 tests--Continued

Breeder	Stock		Number of entries	Tests entered															
	Code	Strain or trade name		Ariz.	B.C.	Calif.	C. C.	Fla.	Minn.	Mo.-C.	Mo.-F.	N. H.	N. J.	N. Y.	N. C.	Pa.	Tenn.	Texas	Wis.
Honegger	92	Honegger Layer	13		X	X	X	X	X		X	X	X		X		X	XX	X
Hubbard	378	Hubbard Golden Comet	3									X			X	X			
Hy-Line	96	Hy-Line 934	6			X		X		X	X				X		X		
Hy-Line	360	Hy-Line 934 D	3	X		X				X									
Hy-Line	385	Hy-Line 934 E	2				X											X	
Hy-Line	388	Hy-Line 938	8	X					X		X	X	X				X	XX	
Ideal	356	Ideal 236	8			X			X		X		X	X	X		X	X	
Ind. Farm Bur.	152	Princess 55	3											X	X	X			
Ind. Farm Bur.	234	Dutchess 60	2													X			X
Ind. Farm Bur.	345	Countess 75	1							X									
Kimber	110	Kimber K-137	4	X			X								X	X			
Kimber	375	Kimber K-137 A	8		X	X		X	X	X				X		X			X
Kimber	111	Kimber K-141	4		X	X				X									X
Kimber	112	Kimber K-155	2	X		X													
Lawton	117	Buff Sex Link	4								X	X		X		X			
Mettling	389	Mettling Cal-Lyne	1						X										
Mo. Valley	136	Best Egg Contest	1								X								
Nelson	598	Nelson Sex Link	1				X												
No. Cen. Reg. Lab.	37	Reg. Cornell Control	9			X		X		X	X			X	X		X	X	X
No. Cen. Reg. Lab.	157	Reg. Red x Reg. Cornell	1			X													
Parks	352	Parks Keystone B-1	6								X	X	X	X	X	X			
Parks	359	Parks K-1700	1													X			
Parks	382	Parks Sil-Go-Links	2								X					X			
Parks	390	Parks Gray-Keys	1													X			
Randall	159	Randall Gray x Leg.	1			X													
Rapp	160	Rapp Linecross	1										X						
Shaver	181	Shaver Starcross 288	12			X	X	X	X	X	X		X	X	X	X	X	X	
Shaver	315	Shaver Starcross 292	1							X									
Starline	533	Starline Pearlette	2				X										X		
Stever	186	Stever SC-300	3										X		X	X			
Stone	190	Stone H-56	10	X	X	X			X	X	X		X		X	X		X	
Sturtevant	336	Black Sex Link	1									X							
Sturtevant	384	Sturtevant Goldies	1									X							
Tokai	395	Tokai WLBA	1															X	
Townline	199	Townline SC-30	1								X								
Triska	556	Triska Belmont 292	1				X												
Warren	305	Sex Sal Link-F	6		X				X	X		X		X					X
Webster	349	Webster New Red	1											X					
Welp	290	Welp Line 937	7			X			X		X				X		X	X	X

Table 7.--Management, rations, laying house environment,

Test	Hatched (1966)	Age at housing (Days)	Length of test (Days)	Entries (Number)	Replications		Housing management			Sq. feet per bird
					Number	Birds per rep.	Brooding	Rearing	Laying 1/	
Arizona	4/19	150	500	5	1	50	Litter	Litter	Litter	2.0
					1	50	--do--	--do--	Cage-2	.7
					1	50	--do--	--do--	Cage-5	.6
Br. Columbia	4/1	150	500	14	4	30	--do--	--do--	--do--	.4
California	9/20/65	126	546	23	4	50	--do--	--do--	Litter	2.3
	11/18/65				4	36	--do--	--do--	Cage-1	1.1
Cent. Canada	4/12	147	497	14	2	65	--do--	--do--	Litter	2.9
					2	90	--do--	--do--	--do--	2.1
Florida	5/27/65	151	550	12	4	50	--do--	--do--	--do--	2.9
Minnesota No. 1	3/31	150	500	15	1	100	--do--	Range	Litter-slat	2.0
Minnesota No. 3	3/28	160	500	15	2	33	--do--	--do--	Cage-3	.5
Missouri Cage	8/13	150	560	15	6	16	--do--	Litter	Cage-16	.6
					6	8	--do--	--do--	Cage-8	.6
Missouri Floor	3/5	150	500	28	3	50	--do--	Range	Litter	2.0
New Hampshire	5/10	160	493	16	1	250	--do--	--do--	--do--	2.3
					1	112	--do--	Litter	Cage-2	.7
					1	65	--do--	--do--	Litter	2.3
New Jersey	3/29	150	500	21	1	25	--do--	--do--	--do--	4.0
					1	25	--do--	--do--	Cage-25	1.0
New York	2/25	152	500	16	2	50	--do--	Range	Litter	3.8
North Carolina	3/25	150	500	20	2	50	Slats	Slats	Slats	1.0
					2	50	Litter-slat	Litter-slat	Litter-slat	1.5
					4	26	--do--	--do--	--do--	.6
Pennsylvania	4/25	150	500	30	3	25	Litter	Litter	Litter	3.4
Tennessee	3/30	147	500	20	4	15	--do--	--do--	Cage-1	.9
Texas	3/9	150	500	24	3	8	--do--	--do--	--do--	1.3
					3	16	--do--	--do--	Cage-2	.6
Wisconsin	3/13	150	500	13	2	40	--do--	Range	Litter	1.5

1/ The number after the word "cage" indicates how many birds per cage.

and vaccination provided by tests, 1966-67

Entries brooded inter-mingled	Min. oz./doz. for large eggs	Protein (Percent)			Metab. energy[2] (calories/pound)			MC/Cr. Prot.[3]			Test
		Start	Grow	Lay	Start	Grow	Lay	Start	Grow	Lay	
Yes	--	21.5	18.0	17.5	1335	1225	1338	62.0	68.0	76.4	Arizona
No	--	19.9	15.6	16.7	----	----	----	----	----	----	Br. Columbia
No	23	22.6	17.8	16.9	1432	1382	1307	63.0	78.0	77.0	California
No	24	21.9	17.4	17.4	1300	1330	1310	59.4	76.4	75.3	Cent. Canada
Yes	23	22.0	17.4	16.9	1340	1371	1313	60.9	78.8	77.7	Florida
Yes	23	21.5	15.4	17.1	[4] 1256	[4] 1257	[4] 1260	58.4	81.6	73.7	Minnesota No. 1
Yes	23	21.5	15.4	----	[4] 1256	[4] 1257	----	58.4	81.6	----	Minnesota No. 3
Yes	--	20.7	16.2	17.1	1318	1261	1267	63.7	78.0	73.9	Missouri Cage
Yes	--	20.7	16.2	17.0	1318	1261	1281	63.7	78.0	75.3	Missouri Floor
Yes	23.5	20.9	16.0	18.5 to 15.5	1340	1319	1255 to 1337	64.0	82.0	72.0 to 81.0	New Hampshire
Yes	24	21.2	----	18.8	1227	----	1144	57.9	----	60.9	New Jersey
Yes	24	21.0	14.5	16.8	----	----	1372	----	----	81.7	New York
No	23	20.0	16.0	18.3 to 16.5	1249	1238	1303 to 1335	62.4	77.4	71.2 to 80.9	North Carolina
Yes	24	21.0	17.0	18.0	[4] 1300	[4] 1357	[4] 1354	61.9	79.8	75.2	Pennsylvania
Yes	23	21.9	17.2	16.8	1333	1347	1271	60.7	78.4	75.9	Tennessee
Yes	24	21.5	17.5	17.5	[4] 1264	[4] 1324	[4] 1376	58.8	75.7	78.6	Texas
Yes	23	20.0	17.0 to 14.0	16.0	1205	1230 to 1259	1270	60.0	72.0 to 90.0	79.0	Wisconsin

2/ Metabolizable energy is the maximum quantity of the energy of the feed which possibly may be used by the chicken.

3/ Metabolizable calories divided by percent crude protein.

4/ Approximate metabolizable energy computed from productive energy, using 70 percent as the conversion factor.

Table 7.--Management, rations, laying house environment,

Test	Lighting		Artificial heat used	R Value of insulation material 5/	Ventilation
	Rearing (Hours)	Laying (Hours)			
Arizona	14	14	No	None	Slat house, natural
Br. Columbia	Natural	16	No	Ceiling 15.5 Walls 9.4	Natural via windows
California	Natural	14	No	Ceiling 1.9 Walls 1.7	Natural via windows
Cent. Canada	(6/)	(7/)	Yes	Ceiling 27.9 Walls 15.1	Exhaust fan in roof
Florida	Natural	14	No	None	Natural via windows
Minnesota #1	Natural	14 to 16	No	Ceiling 15.0 Walls 13.0	Exhaust fans
Minnesota #3	Natural	14 to 18	No	Ceiling 15.8 Walls 12.1	Positive pressure
Missouri Cage	12	14	No	Ceiling 5.8 Walls None	Ridge vents
Missouri Floor	Natural	14	No	Ceiling 15.0 Walls 15.0	Exhaust fans in ceiling
New Hampshire	Natural	14	---	----------	----------
New Jersey	Natural	14	Yes	Ceiling 1.9 Walls 2.4	Exhaust fans
New York	Natural	14	No	None	Natural via windows
North Carolina	Step down.	Step up	No	Ceiling 7.3 Walls 1.5	Natural via windows
Pennsylvania	Natural	14	Yes	----------	Natural via windows
Tennessee	Natural	Natural 8/	No	Half of house at 4.0 and half at 13.0.	Winter, positive pressure; summer, exhaust fans.
Texas	Natural	15	No	None	Natural via windows
Wisconsin	Natural	14	No	Ceiling 10.0 Walls 10.0	Positive pressure

5/ Due to variations in type of construction, these R Values will be approximate for some tests.
6/ At day old--18-1/2 hr.; light decreased 15 minutes per wk. to meet at 15-1/2 hr. at longest day, then natural decrease until 13-1/2 hr.
7/ 13-1/2 hr. until natural increase takes light hours to 15-1/2 hr. in mid-June, then light held at 15-1/2 hr. until end of test.
8/ 14 hr. per day until 10 mo.; thereafter increase 15 minutes per week.

and vaccination provided by tests, 1966-67--Continued

New Castle		Infectious bronchitis.		Fowl Pox		Laryngo-trachitis.		Encephalo-myelitis.		Coccidiosis control.		Test
Type	Age (Wk.)	Type	Age (Wk.)	Type	Age (Wk.)	Type	Age (Wk.)	Type	Age (Wk.)	Type	Age (Wk.)	
Occular Water	4 16	Occular Water	4 16	Wing web.	8	None	--	None	--	Unistat	1-20	Arizona
Nasal Spray Spray	1 3 14	Spray Spray	3 14	None	--	None	--	Water Water	12 20	Amprol	0-20	Br. Columbia
Water Muscle Muscle	1 4 16	Water Water	2.5 16	Wing web.	9	Vent	9	None	--	Live oocysts Sulfa-quinoxaline.	1 1	California
Spray Spray	13 22	Spray Spray	5 12	Wing web.	9	Vent	9	None	--	Amprol	0-8	Cent. Canada
Water Water Water	1,3,10 16,32 48,64	Water Water	1,3 10,16	Wing web.	8	None	--	None	--	Cocci-Vac	2	Florida
Water Water	5 14	Water Water	5 14	Wing web.	9	None	--	None	--	Cocci-Vac Tri Thy Adol Ni Dra Fur	1 0-8 0-14	Minnesota #1
Water Water	5 14	Water Water	5 14	Wing web.	9	None	--	None	--	Cocci-Vac Tri Thy Adol Ni Dra Fur	1 0-8 0-14	Minnesota #3
Water Water Water	1 6 14	Water Water Water	1 6 14	Wing web.	8	Occular	8	None	--	Cocci-Vac	1	Missouri Cage
Water Water Water	1 6 14	Water Water Water	1 6 14	Wing web.	8	Occular	8	None	--	Cocci-Vac	1	Missouri Floor
Dust Dust	2 20	Dust Dust	2 20	None	--	None	--	None	--	Cocci-Vac	.5	New Hampshire
Water Water	2 16	Water	12	Feather follicle.	10	Occular Occular	4 10	None	--	Amprol	8	New Jersey
Spray Spray Spray	2 26 44	Spray Spray	26 44	Pigeon	22	None	--	None	--	None	--	New York
Water Water Water	1 5 16	Water Water Water	1 5 16	Wing web.	12	None	--	Water	18	None (slats) Cocci-Vac Trithiodol	-- 1 1-9	North Carolina
Water Water Water	4 8 16	Water Water Water	4 8 16	None	--	None	--	None	--	None	--	Pennsylvania
Occular Occular Occular	1 day 10 20	Occular Occular Occular	1 day 10 20	Wing web.	20	None	--	None	--	Amprol	0-20	Tennessee
Mod. live Mod. live Mod. live	.5 2 4	Mod. live Virulent	4 14	Wing web.	12	None	--	None	--	Sulfa-quinoxaline.	0-13	Texas
Water Spray Water	1 4 16	Water Water	1 16	Wing web.	12	None	--	None	--	Cocci-Vac	2	Wisconsin

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